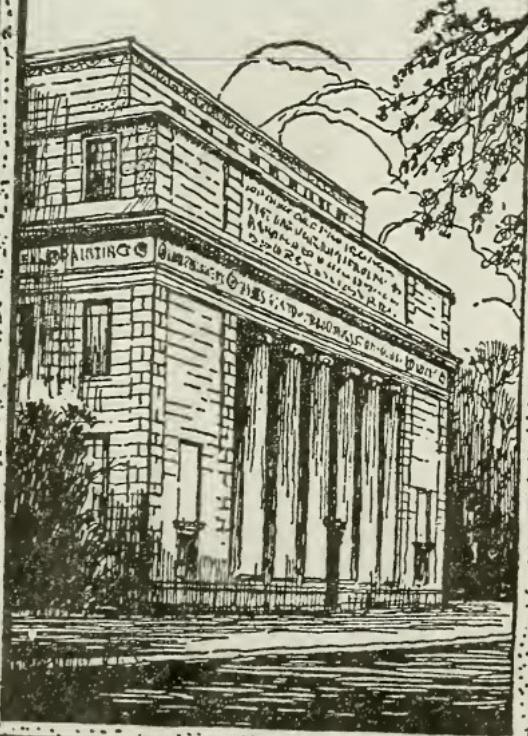






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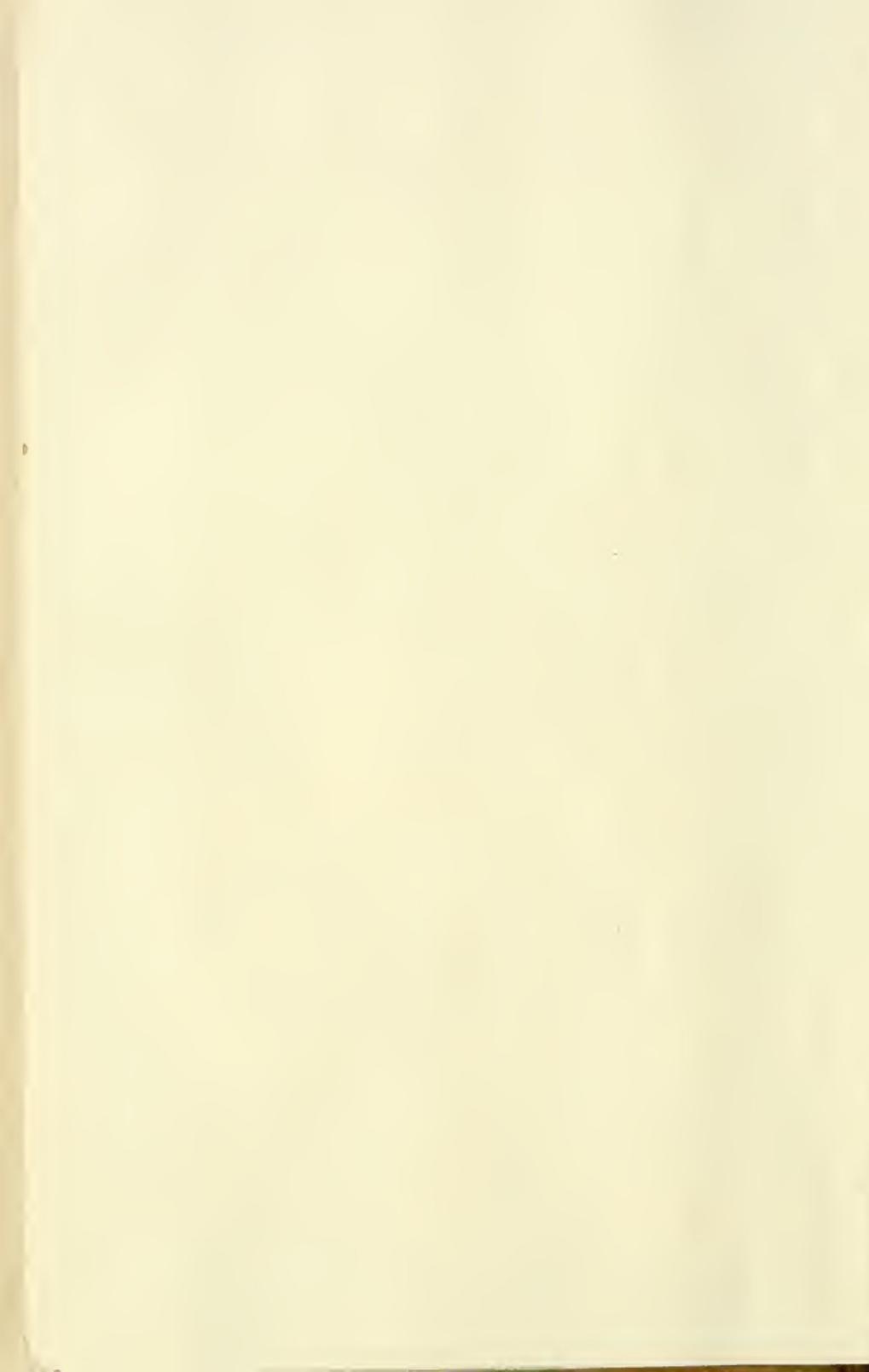


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ARCHAEOLOGICAL EXPLORATION OF A ROCK SHELTER IN BREWSTER COUNTY, TEXAS

BY

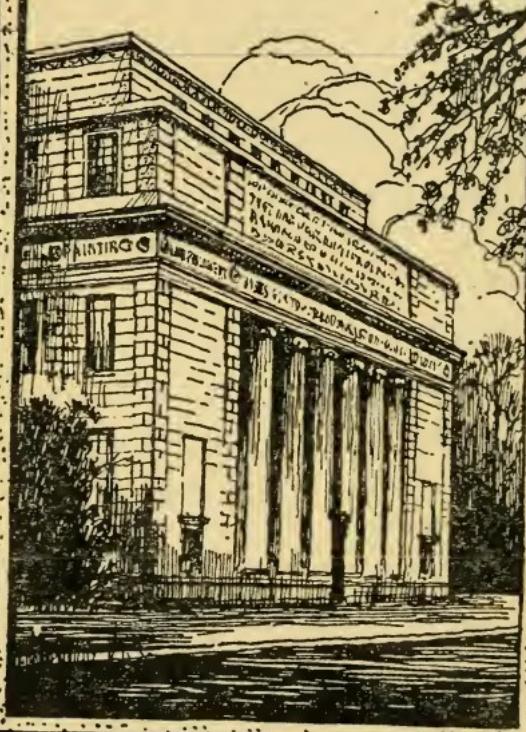
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ARCHAEOLOGICAL EXPLORATION
OF A ROCK SHELTER IN
BREWSTER COUNTY, TEXAS

BY
EDWIN F. COFFIN

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FOREWORD

The rock shelter to which this report refers was discovered on February 16, 1928, by Mr. M. R. Harrington who recorded it under the name "Eagle Cañon" rockshelter (*Indian Notes*, vol. v, no. 3, Museum of the American Indian, Heye Foundation, New York, July, 1928), although given on the map of the United States Geological Survey (Nine Point Mesa Quadrangle, Brewster County, Texas) as Bee Cave Canyon. Mr. Harrington, in a letter dated March 15, 1929, says, "I called the canyon Eagle Canyon in place of Bee Cave, as stated on the map, because Ray Miller of Marathon, an old timer in the district, told me that Eagle Canyon was the original name and that Bee Cave Canyon was given it on the spur of the moment by Government men." As it is now recorded on the Geological Survey maps as Bee Cave Canyon, it is so referred to in this publication.

After some work in the rock shelter, reference to which is made in the appendix, Mr. Harrington returned to New York, and shortly afterwards resigned from the staff of this Museum. The results thus far having been of great interest, it was deemed advisable to continue the archaeological investigations of the rock shelter, and in February, 1929, Mr.

Edwin F. Coffin, a member of the Museum's staff, commenced his work where Mr. Harrington left off, and worked on the site until the middle of June of that year.

GEORGE G. HEYE, *Director.*

INTRODUCTION

The expedition, during which the research described in this publication was made, investigated primarily Bee Cave Canyon, and other caves and rock shelters in close proximity to it. Caves in the Hueco Mountains and pueblo sites in the vicinity of El Paso were also examined, as well as a rock shelter in Satan Canyon, a branch of Devil's Canyon, twenty-five to thirty miles northwest of Del Rio, in Valverde County, Texas. The work was carried on under the auspices of the Museum of the American Indian, Heye Foundation, of New York City, and the University Museum of Cambridge, England.

I want to take this opportunity to express my thanks to Mr. Lee Schuler and family, on whose property Bee Cave Canyon is located, for their great assistance and the many favors they have shown me. I wish to acknowledge my obligations to Mr. and Mrs. R. B. Alves, Mr. and Mrs. Fred Woodworth, Colonel M. L. Crimmins, and Mr. Victor J. Smith, for the many kindnesses shown, and the help given me while working in the vicinity of El Paso; Mr. Henry T. Fletcher and Mr. E. E. Townsend, while working near Alpine; Mr. C. A. Markward of Del Rio, for giving permission to excavate a cave on his property in Satan Canyon, Valverde County, and

Dr. John K. Small of the New York Botanical Garden, who identified many of the samples of vegetable substances found in the shelter and brought to New York from Texas.

E. F. C.

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બુદ્ધિજીવાનિ

સ્વેચ્છા યોગી

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Coffin, Rock Shelter; Bee



ARCHAEOLOGICAL EXPLORATION OF A ROCK SHELTER IN BREWSTER COUNTY, TEXAS

BY EDWIN F. COFFIN

BEE CAVE CANYON TOPOGRAPHY

THE rock shelter is located on the ranch of Mr. Lee Schuler, on the north side and at the mouth of Bee Cave Canyon, Brewster County, Texas, about nine miles southeast of Santiago Peak and about one and four tenths miles east, and a little south, of Black Peak.¹ Bee Cave Canyon is a box canyon, about 1500 feet deep and 400 feet wide at its mouth, and derives its name from the colonies of bees that nest in crevices of the wall of the rock shelter. The canyon opens into Chalk Draw, which at this point is very wide and drains toward the southeast. For over ten miles of its course, beginning a little more than half a mile northwest of Schuler's Ranch, its southern boundary is an almost continuous cliff of limestone, indented here and there with canyons and caves. Within the distance mentioned, there is but one horse trail leading from the

¹ See Nine Point Mesa Quadrangle, Brewster County, Texas, published by the United States Geological Survey, Washington, 1918.



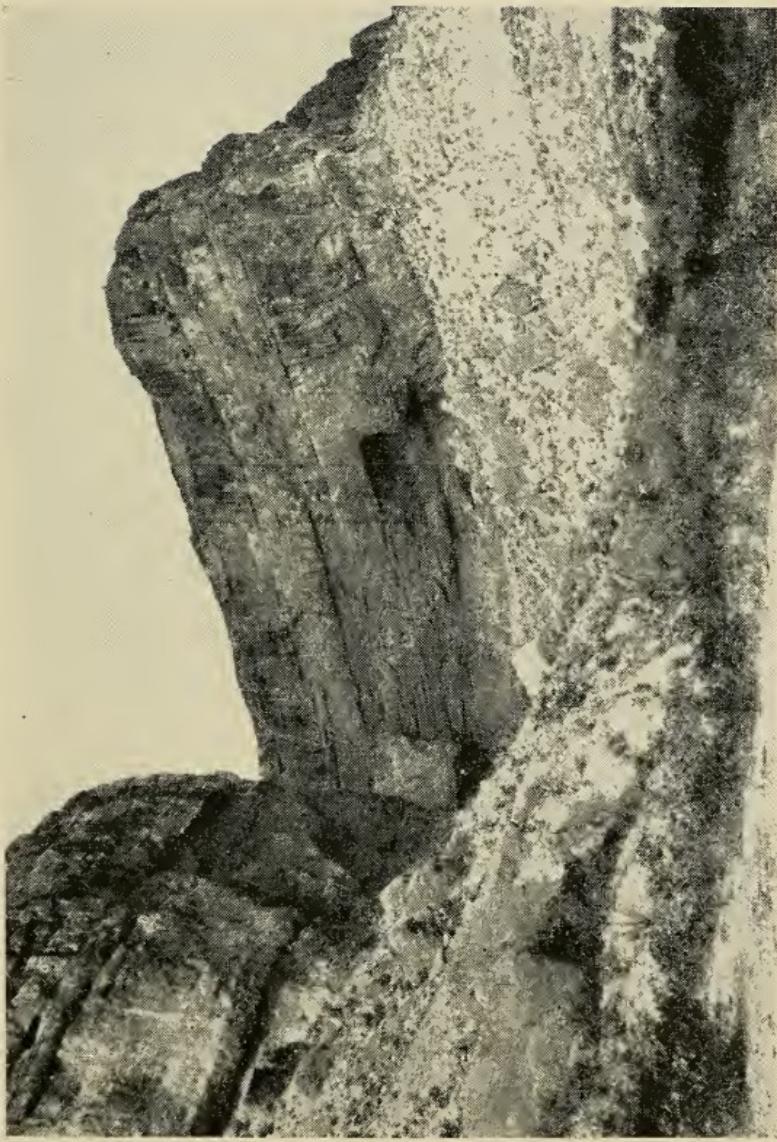
SHELTER AND SITES EXCAVATED, BEE CAVE CANYON, BREWSTER COUNTY, TEXAS

draw to the top land. Wagons and automobiles must detour to reach the top.

The northern wall of the canyon at its mouth and at the rock shelter rises from 400 to 450 feet above the valley. The talus at its base extends up the wall about one third of this distance, and the outer edge of the sloping roof of the rock shelter is about midway between the upper edge of the talus and the top of the cliff. The northern wall juts from 200 to 300 feet beyond the southern one. This was advantageous to its inhabitants, as it allowed one standing at the eastern end of the rock shelter a wonderful view for miles to the east and southeast down the draw, and permitted any breeze coming up the draw in summer to enter the rock shelter, while in winter when the winds come down the draw, it prevented quite effectually their deflection into the canyon, a circumstance taken advantage of to-day by herders, who use the old shelter for a winter fold.

The rock shelter is well protected from rain, for the drainage above is toward the southwest and the water falls into the canyon at its western end, so that very little comes over the cliff. Occasionally, however, a small portion of the rainwater flowing over the edge of the opposite canyon wall is carried into the shelter by strong winds.

At the end of the canyon is an abundant water supply, stored in a natural stone reservoir, about thirty feet in diameter, formed by the fall of over



ROCK SHELTER AND TALUS AT MOUTH OF BEE CAVE CANYON

COFFIN—ROCK SHELTER

PL. II



CHALK DRAW FROM EASTERN END OF ROCK SHELTER

one hundred feet of the waters of Upper Rotten Draw, which drains the southern slope of Black Peak and a large area of the upland. This reservoir has never been known to go dry, according to the present older inhabitants of the surrounding country.

ROCK SHELTER

The rock shelter, measured by the overhang, is 768 feet long, and 106 to 110 feet wide in its central portion from overhang to back wall. A mass of rocks which has fallen from its roof near the center almost divides it into two portions.

It was occupied mostly at the easterly end, this part being better adapted to the purpose, as it was the widest and most level. Much filling and leveling had been done during the time of occupancy. Over a small area to the east the floor-covering was found to be on the undisturbed talus, while the further the work was carried to the west the deeper was the fill of ash, stone, grass and discarded material, especially against the rock shelter wall. Many pointed ends of large stones protruded through the lower layers of the flooring, but at the time of the abandonment almost all of these were covered by succeeding layers of similar floors, which were over four feet deep at some points. On the wall at the back were a number of pictographs in red oxide of iron, one of which probably represents a bird with wings spread, and two others human beings.

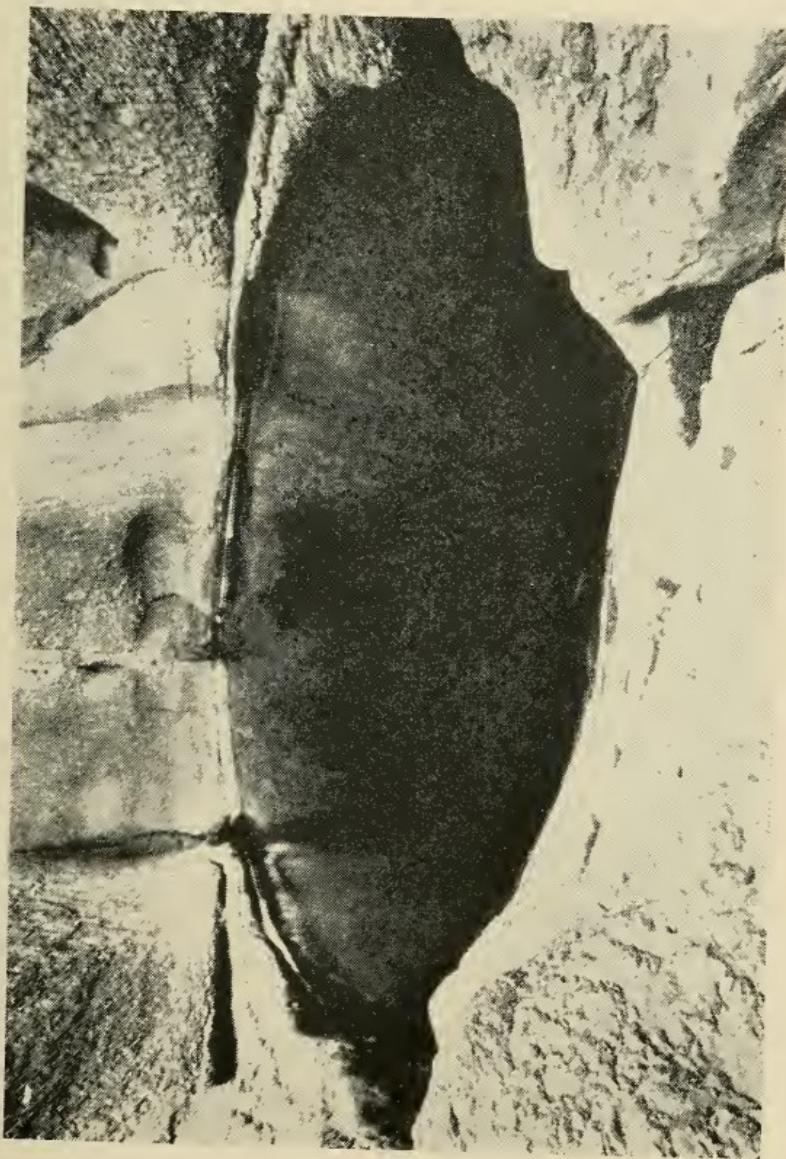
HOUSE-SITES

These sites have been called house-sites for want of a better name. The walls, judging by the amount of loose stone in close proximity, were probably not much higher than when found. No roof beams or posts were found except in house-site 4, where charred ends of posts were driven into the floor, but there is no evidence that these supported a roof. Perhaps enclosures would have been a better term.

The ruins of six "houses" were found, the foundations of which were all laid on the lower floor levels. These, for convenience of reference, will be denoted by number, in the order of excavation.

The walls of house 1 were partly demolished, and the site completely covered by the later floor layers. The east wall was 15 inches thick and measured 11 feet in inside length; it was 21 inches high at its southern end, and 17 inches at its northern end where it abutted on the rock shelter wall, and it bowed 6 inches in the center, toward the east. The northern end of the wall was 4 feet 3 inches long, and was constructed of small stones quite well laid, and chinked with a mixture of adobe and ash. The southern end was made of heavier stones with the inside corner thickly plastered with the same material, and the center part, 3 feet 5 inches long, was poorly constructed, one stone 12 inches wide by $2\frac{1}{2}$ inches thick having been placed on end.

Six feet of the southern wall of this house were traceable, it being 17 inches thick at its western end.



NATURAL STONE RESERVOIR AT END OF BEE CAVE CANYON

COFFIN—ROCK SHELTER

PL. IV



HOUSE-SITE 3 LOOKING EAST

The second course of stone was laid in adobe, with the base heavily plastered, and showed the finger-prints of the builder. The western wall was missing. Near the eastern wall and outside the house-site were two small stakes driven into the ground, not far from the rock shelter wall.

Little remained of house-site 2, except a part of its eastern wall which curved at its southern end and was 2 feet high. The foundation stones were all quite large and were set on end. For a distance of 9 feet this wall was parallel with the west wall of house 3, forming a wall 2 feet thick.

Near this wall, but inside of the site and six inches below the surface, was uncovered a sherd of a cooking pot. In a row, about six inches apart and at the same distance from the house wall and on the same level, were three fragments of unbaked pottery figurines and a fragment of coiled basketry.

House-site 3 was immediately east of that of house 2. The west wall of this house was built against the east wall of house 2, as before mentioned. Both the east and the west walls were of large stones set on edge; the southern one of smaller stones, laid up. All the walls stood 2 feet high. The floor plan was irregular. Its northern side along the rock shelter wall was 11 feet 8 inches long. The average dimensions of the house were 6 feet 6 inches, by 9 feet 8 inches. No definitely defined floor was found, but the level of a bed of ashes found six inches below the surface and in the center of the room probably

had been one that caught fire and burned downward until it reached the stone fill beneath (pl. IV).

Outside of the burned area, in the first foot below the surface and mixed with grass, were fragments of matting, skin, skin twisted on strings, wood showing marks of tools, arrow foreshafts, a hearth for fire-making, a quantity of chews or quids and fragments of crowns of sotol (*Dasylinion* sp.), cactus leaves (*Opuntia*), pieces of gourd, corn-cobs and husks, cactus seed-pods, piñon nuts, animal bones, stone chips, a broken stone arrowpoint, a small grinding-stone, a pitted hammerstone, and a small stone painted with a black design.

In the second foot level, which exposed the bottom of the west wall, the fragmentary material was similar to that of the first with the addition of two worn sandals and two fragments of the carapace of a turtle. In the northwest corner, 14 inches below the surface, was a bundle of loose grass which covered a fragment of a blanket-like object made of fine fiber and strings. The fragment was folded and laid upon a checker-weave mat, which in turn was placed upon a piece of leather of about the same size. The grass floor-coverings, which were laid before this house was built, ended a few inches below the west wall.

Below the house just described and between the rock shelter wall and a large rock, were three fragments of an object that may possibly have been a baby-carrier, made of grass, tie-twined together with yucca leaves. One of the fragments was charred by the fire before mentioned.

Just east of these fragments and along the rock shelter wall was a bed of grass, 5 feet by 5 feet 4 inches in size. Below the grass was a framework of buckeye branches tied together at different points with strands of fiber. A bent piece of cedar laid on this framework, with the concave side toward the wall, caused a ridge under the grass and may have acted as a partition to divide off the space next to the wall, to be used as a bed for a very small child (pl. v).

Under the second cross-bar, formed by a branch, toward the eastern end, was a small mass of soft grass which, upon being removed, disclosed a digging stick lying parallel to and under the cross-bar, and a net bag.

Eight inches below the bed just described was another one made of grass on a framework of branches. In removing the grass, which was well worn, a small child's sandal was found. The bed was in a depression and rested on the undisturbed talus (which at this point was of very fine stones), except in the center where there was a hole 15 inches in diameter and 5 inches deep which had been filled in with stone and ash. It was of the same length as the upper bed but narrower by about one foot. Scattered between the branches under the lower bed were quantities of small seeds, nuts, animal bones, sotol and cactus leaves, a burned fragment of antler, an arrow-point, pieces of matting, and a worn sandal. The two beds and the baby-carrier were quite separate from the débris of house-site 3 above them.

On the wall of the rock shelter, about midway between the remains of the east and west walls of house 3, were five impressions made by hands smeared with red oxide of iron, four of which, placed in pairs, one above the other, faced directly into the room. The thumbs of the upper pair were placed opposite each other, while the thumbs of the lower pair faced outward. The lower left impression was $6\frac{3}{4}$ inches long and was 3 feet above the surface of the room before excavating began. The fifth impression was that of a left hand placed on a fractured surface facing southwest and a few inches to the west of the four above described. The imprint of the fingers was elongated, as though the person had drawn his hand down with the fingers touching the wall for a short distance before pressing the palm upon it. The bottom of this imprint was about in line with the top of the highest of the other four. About six inches below the imprint last described there was a smear on the wall, as though the hand had been wiped on it after making the impression.

There were traces of smoke blackening on the wall at the eastern end of the house.

House-site 4 was east of that of 3, and the space between the walls of the two houses was filled with stone, making a wall varying from 3 feet 6 inches to 4 feet in thickness. The floor plan was oval in shape, with one end truncated.

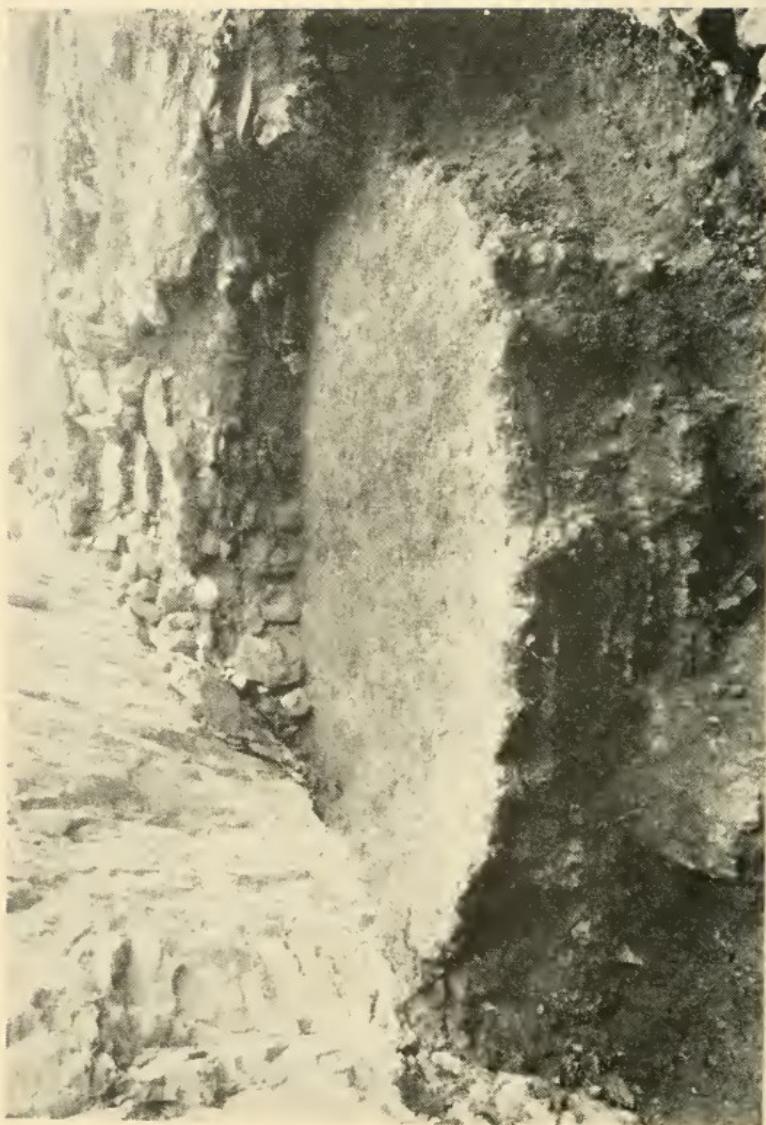
The east and west walls were built of both large stones on end, and small stones laid up, while the



UPPER BED AT ONE-FOOT LEVEL BENEATH HOUSE-SITE 3

COFFIN—ROCK SHELTER

PL. VI



HOUSE-SITE 4, LOOKING EAST, WITH WESTERN AND PART OF SOUTHERN
... IN REVERSE

southern section was composed of large stones on end. The bases of the east and west walls were 32 inches below the surface, and the base of the southern portion was slightly higher. Two fragments of crude metates were incorporated in the walls, one in the east (pl. vi) and one in the west. The east wall was smoke blackened.

While cleaning out the house to the level of the low spot next to the rock shelter wall, an almost complete sifting basket was uncovered, set on edge against the west wall. Six inches below this level was a remnant of a grass floor, the center of which was covered with ash and small burned stones. Between the eastern edge of this area and the east wall of the house, and on the floor, was about a bushel of pieces of leaves which had been stripped from the outside of roasted crowns of sotol, and in the northwest corner was about half this amount of the same material.

Scattered through the débris encircling the room were numerous bones of animals and birds (many of which were burned and split), an arrow foreshaft, two paint-sticks, six reed pipes, a fragment of a shell pendant, an arrowpoint, fragments of matting and leather, wood showing marks of tools, a hearth for fire-making, gourds, seed-pods, seeds, stone flakes, pieces of antler, a grinding-stone, and the sotol leaves already mentioned. Finding such a quantity of roasted sotol fragments and animal bones surrounding the burned area in the center of the room sug-

gests that the house, after falling into disuse as a habitation, was employed as a pit for cooking.

The east and west walls extended about two inches below this floor. Slightly below the floor were the charred ends of three posts which stood in a row about one foot east of the center of the room. Their lower ends had been hacked and broken off, as though a stone tool had been used, and they had been driven into the stones of the talus below.

The grass floor-coverings extended under and down 9 inches below the walls of house 4, and the fill of rock and débris another 15 inches. The grass was badly burned, and with it everything that it might have contained.

Between the rocks of the fill below were several fragments of sandals and checker-weave matting, a short piece of fiber string with two seed and three reed beads threaded on it, three arrowpoints, animal and bird bones, several grinding-stones and pitted hammerstones, a fragment of a wooden fire-tongs, a painted stone, a notched rhythm stick, a fragment of an unbaked pottery figurine, a quantity of small seeds, several Mexican walnuts, a stick of wood charred at one end and having two strips of leather attached with sinew to the other.

On the wall of the rock shelter, about midway between the east and west walls of house 4, was limned an outline of a left hand and wrist. Inside the outline, which was dark red, the surface was clean with the exception of a trace of lighter red on



OUTLINE OF HAND AND WRIST, HOUSE-SITE 4
Length of hand, 8.5 inches



GROOVED ROCK SURFACE, POSSIBLY ABRADED FOR SHAPING AND
SHARPENING IMPLEMENTS

the two center fingers and across the knuckles. Outside there were smudges of smoke blackening on the left side of the wrist and between the thumb, first, second and third fingers. The left outline of the third finger was missing and the tips of thumb and fingers were not completed. The total length of this outline was $13\frac{1}{2}$ inches (pl. VII).

To the south, adjacent to the combined east and west wall of house-sites 3 and 4, and on the surface, was a fireplace or pit 26 inches in diameter by 7 inches deep, which was filled with ash. It was well defined, having no doubt been cleaned out many times. The grass floorings around and below the pit were charred, but remained firm.

House-site 5 was excavated by Mr. M. R. Harrington in 1928. Its inside northwest corner was 7 feet 9 inches from the inside northeast corner of house-site 4. The west wall stood on a grass floor-covering 15 inches thick, in which a pendant of steatite was found. Between this flooring and the stone fill, 12 to 15 inches below and under the western part of the house, three wooden plugs and a piece of coiled basketry were recovered. The removal of a large stone from the center of the south wall exposed a pouch made from a small checker-weave mat, containing a quantity of corn and squash seeds.

When house 6 was built, three large stones which lay on the surface were incorporated with other stones on edge to form the wall. The floor, which was immediately below the surface, was of well worn

grass. A fireplace, in the shape of a rounded pit, was midway of the room, not far from the southern wall. It was filled with ashes to the depth of $7\frac{1}{2}$ inches, and the grass adjoining was charred. The layers of the grass floor-coverings under the house were 9 inches thick and lay on the talus. There was no rock or other fill below.

Between the grass floor-coverings and next to the large stone at the eastern side of the house were found the left half of the lower jaw and part of the frontal bone of a human skeleton, two fragments of metates colored red on one side and black on the other, and a rubbing stone. Near by was a fragment of a sandal and a short length of reed inserted into what appears to be a piece of dried vegetable substance.

Along the rock shelter wall, to the west of the house-sites above described, were three groups of stones which were flat on the surface. Their position suggests that at one time they formed low walls which have been knocked down by the sheep and goats that today occupy the rock shelter during the winter months. While it was impossible to measure these enclosures accurately, they are in such a position as to indicate rooms about 8 by 9 feet in size. If assembled, the stones would have made a wall two tiers, or about 9 inches high.

Remnants of seven similar structures were located along the wall in the western part of the rock shelter. They were built of loose stones on the talus and the

floors covered with grass mixed with which strings and fibers were found. There were also eight spots along this section of wall which had been lightly covered with grass and had probably been used for camping. One of these, in a depression, was covered a little more thickly than the others, and was littered with twigs, leaves, animal bones, fiber strings and corn-cobs.

CAVES

The mass of stones previously mentioned, which had fallen from the middle of the arch of the rock shelter roof, formed several small caves, two of which showed signs of human habitation. The larger, cave 1, was 37 feet 9 inches in extreme length, and about 9 feet wide. The smaller was approximately 9 feet square. Cave 1 had been occupied at its northeastern end. Back of a retaining wall four to five inches high, formed of three stones placed end to end between a large rock and the southerly wall, was a bed of grass, leaves, twigs and litter. In front of the retaining wall was a patch of grass flooring one to two inches thick. A fireplace 18 inches deep was close to the edge of the flooring and 6 inches from the northerly wall. It was filled with ashes and the wall was smoke blackened.

Behind a stone, against the southerly wall and at the edge of the grass flooring, were a pair of worn fiber sandals, and scattered through the grass of the bed were a corn-cob, fragments of checker-weave

matting, coiled-weave basketry, reeds, pieces of wood bearing marks of tools, fiber, strings, gourds, a hearth for fire-making, a notched end of an arrowshaft, a bowed twig, and a fragment of a curved grooved stick, 8 inches long, such as is used for rabbit hunting by some of the living tribes of the southwestern United States today. Upon removal of the retaining wall before mentioned, the grass flooring was found to run under the wall and bed.

On the northerly face of a large rock at 9-G, 10-G, and on the upper face and edge of a large split rock, 18-J, 19-J (see map), were numerous grooves which may have been used to help shape and sharpen bone and other implements (pl. VIII).

FIRE-PITS

To the east of the rock pile at the center of the shelter were two depressions, the larger without, and the smaller within the area covered with grass. Both these depressions proved to have been fire-pits. The greater one was bare, but the smaller was surrounded with pieces of roasted sotol crowns and other refuse.

OBJECTS RECOVERED FROM THE EXCAVATIONS

STONE ARTIFACTS

Many grinding-stones, few of which are over 6 inches in length, a size convenient to operate with

one hand, were found. The coarser and harder ones are neatly pecked to shape, but some of the finer grained and softer are ordinary brook stones. The worn surfaces are of interest as they show the motion used while grinding. Some are worn flat by steady pressure, some are convex from rocking, and others, especially the softer, finer grained type, are worn to a sharp edge on one side. A few are pitted on one or both sides, showing a secondary use as hammers.

Beside the two crude metates used in construction of house 4, and one found under the surface, only a few fragments of others were recovered.

Pitted hammerstones were abundant, and about a dozen roughly chipped spherical stones, which probably were used as hammerstones, were also found.

Many chipped or flaked stone implements occurred, such as arrowpoints, scrapers, saws, knives and spear-points. The largest of the scrapers is $5\frac{1}{2}$ inches long.

A fragment of a grooved axe or maul, and a fragment of what appears to have been a bowl made from a nodule with the rim rounded by grinding and the outside pecked were found in the fill under the floor-covering, near the wall about in the center of the shelter.

Other finds within the shelter were:

Several fragments of flat, fire-blackened stones, which may have been used as griddles or baking stones.

Two rough stones with fiber cords attached.

Two fragments of tubular smoking pipes, or "cloud blowers," made of limestone.

Four small unworked stones wrapped with grass. The ends of the wrapping on one of these are twisted together, while the ends of the grass on two of the others are held in place by cactus spines. Protruding from under the wrappings are what appear to be thin pieces of some vegetable substance. It is possible that these objects were used as charms (fig. 1).

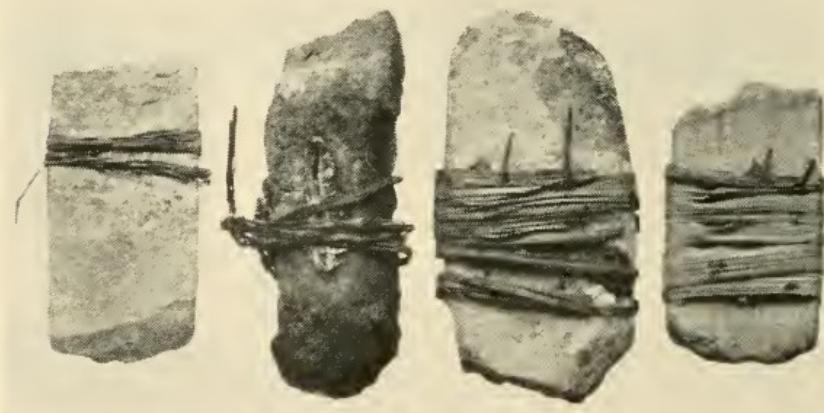
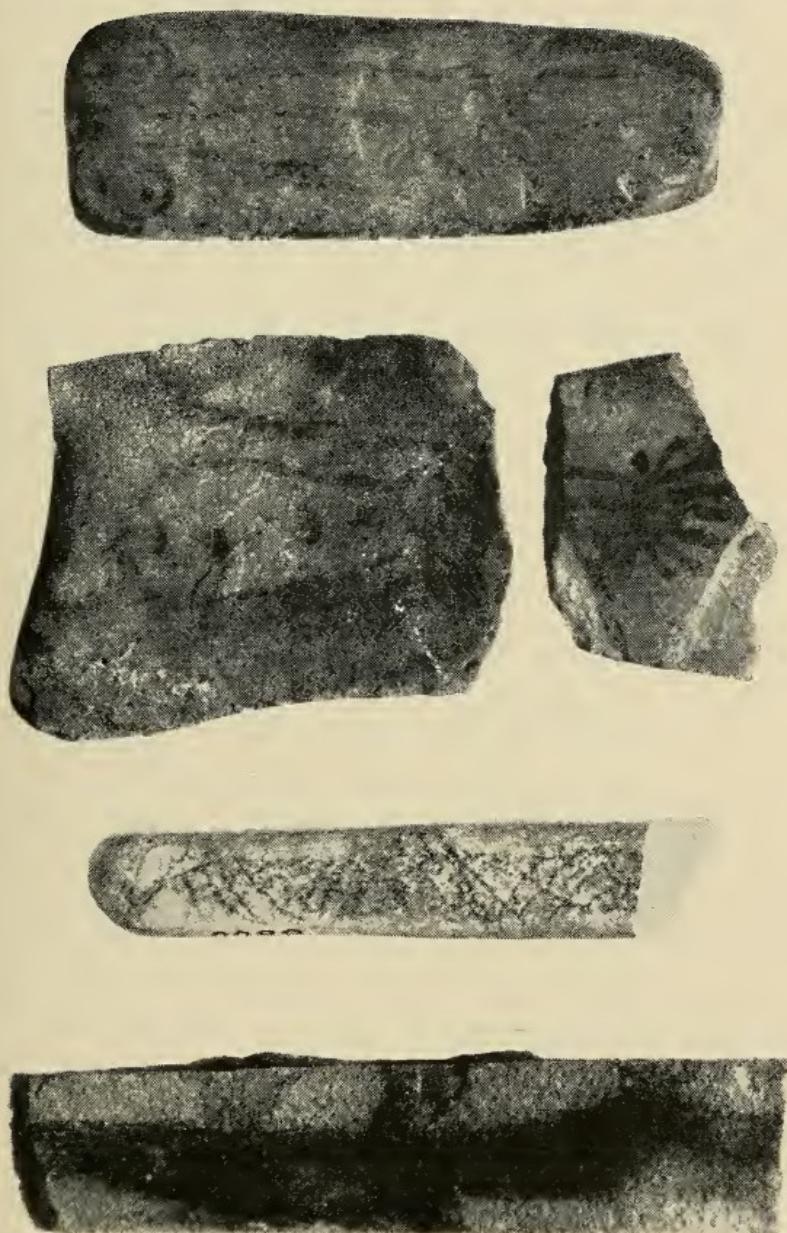
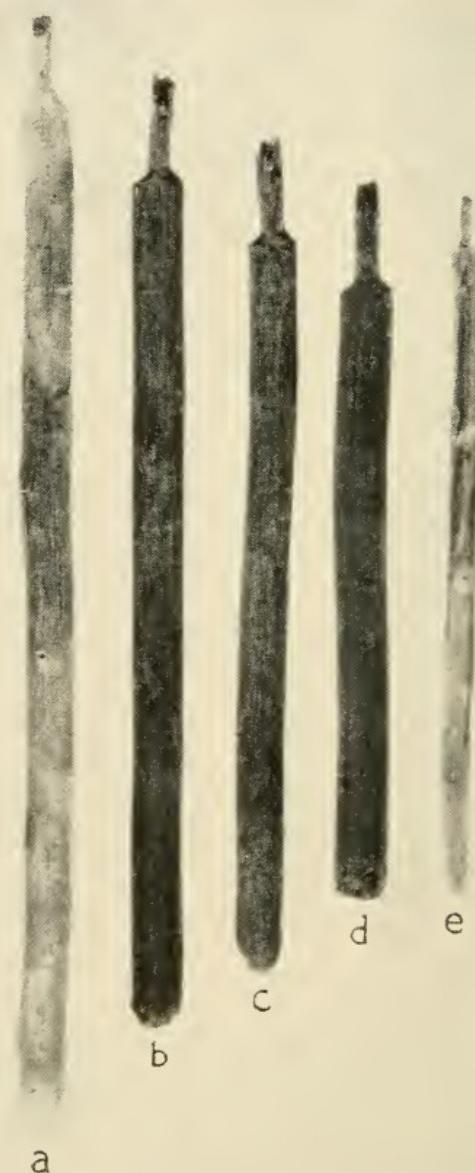


FIG. 1.—Stones wrapped with grass. Maximum length, 2.6 in.
(16/8706-08)

A number of brook stones and flakes from the shelter wall were decorated with painted designs, two with red, the others with black. The designs, for the most part, although quite clearly defined, are not suggestive of interpretation (pl. IX).



STONES DECORATED WITH DESIGNS IN BLACK OR RED
Maximum length, 3.5 in. (16/8589, 8594, 8596, 8599, 8600)



STICKS OF WOOD WITH TENON-LIKE ENDS
Length of *b*, 7.4 in. (16/8619)

PAINTS

Black, red, and yellow paints were employed by the dwellers in the rock shelter. On some of the painted stones charcoal appears to have been the basis of black paint, on others vegetable juices were the chief ingredient. Oxide of iron was used for red, and ochre for yellow. The beveled ends of thin pieces of stone served to apply the colors, and a number of these were found with the paint adhering to them.

WOODEN IMPLEMENTS

A number of round sticks cut at each end, possibly gaming sticks, and two short triangular ones which may have been dice were found.

Among objects of unknown use are five lengths of wood, round, and with one end cut like a tenon. The opposite ends of two are tool marked (pl. x, c, d). The one marked *e* is splintered, and the remaining two are charred.

A similar object, $9\frac{1}{8}$ inches long and $\frac{9}{16}$ of an inch in diameter, was found back of a cave at the mouth of Rotten Draw, about two and three quarters of a mile south by east of the shelter. This specimen had a tenon at each end, one at an angle of about forty-five degrees in relation to the other.

An entire rhythm stick, $11\frac{1}{2}$ inches long, with twenty-nine notches, and several fragments of others, some of which are very crude, were recovered.

Many fragments of fire-making drills and hearths

remained. Only one of the drills was complete. It measured $25\frac{5}{8}$ inches in length, and had a rough point at the upper end, proving that it was of the type manipulated by twirling between the hands.

Small bows, about a foot in length, made from a branch or twig, and bent with a string of fiber, were the only bows recovered. These were probably toys, for although they are strong enough to rotate a fire-drill, it is doubtful if they were used as such, for no parts of the fire-drills found show evidence of having been used in that manner.

Four fragments of atlatls, or throwing-sticks, all from the end in which the nock of the arrow or spear rests, lay in the same levels as notched arrows. The upper sides of three of them are flat, while the upper surface of the fourth slopes slightly toward the center. The grooves are round. The under sides are all convex. Two of these specimens had been severed from the rest of the implement, probably after accidental damage to the prongs, by cutting or sawing part way through from either side and breaking the remaining fibers.

Three fragments of curved sticks (rabbit sticks), grooved along the sides, were recovered, but no entire specimen.

Tapered plugs, saw-grooved, and broken off at one end and battered at the other, may have been used as stoppers for gourd bottles. One of these has been cut off and made smaller at one end, the tool marks showing where this operation ceased. In both ends

of this specimen are what appear to be wedges (although these may be the projections of one piece running all the way through, as they are in line) of a material, in its present state, as soft as, and resembling, the edge of a piece of gourd.

A number of battered and hacked pieces of wood which may have been used as stakes to drive in the ground, or as wedges, were found.

Many broken and cut fragments are probably remains of tool handles and implements. One of these is probably the partly sawed and broken off handle of a rabbit stick, roughened to afford a grip.

A thin stick $4\frac{1}{8}$ inches long, flattened on two sides, is pointed and charred at one end. On the



FIG. 2.—Pointed stick with leather straps. Length of stick, 4.1 in. (16/8685)

other end are bound two pieces of leather which apparently originally formed loops, one on each flat side. One of the loops is broken, and part of the other is missing (fig. 2). The object suggests an implement held between two fingers passed through the loops, possibly a corn sheller.

An object $\frac{7}{16}$ of an inch in diameter and 3 inches long is wrapped on one end with sinew. A hole $\frac{5}{16}$ of an inch in diameter and 1 inch deep is drilled in one end. The other end is cut off, and judging by the surface this object was used after the cutting took place, as it is more or less smoothed and rounded. Other similar sticks ranging up to 8 inches in length were also found, with drillings in one or both ends, though some do not show usage on the cut end.

Other sticks have depressions in the upper ends from $\frac{3}{32}$ to $\frac{3}{16}$ of an inch deep. The lower ends are partly cut, then broken off. These objects fit well when laid in the groove of the fragment of the throwing-stick before described, with the depressions engaged with the spur of it. They may have been ends of light projectiles.

Other wooden implements were:

Several pointed digging sticks, varying from 20 to $42\frac{3}{8}$ inches long, and ranging from $\frac{5}{8}$ to 1 inch in diameter.

A number of sides of wooden tongs used for trimming the fire, and for other purposes. These had been flattened on one side and grooved at one end, so that when a pair of them is bound together, the

flat surfaces face to face, a very efficient tool for handling embers is obtained. They had all been used, as shown by the charring of the unbound ends.

Two finely finished wooden implements, pointed at one end and grooved at the other, probably used as paint-sticks.

Two twigs bound at both ends with fiber strings, probably parts of snares.

A flat piece of wood $\frac{5}{8}$ of an inch wide by $2\frac{1}{2}$ inches long, decorated with three black painted designs, one of which appears to represent a dragon-fly, another possibly a butterfly, while the last is a rectangular oblong outline.

Notched foreshafts of wood, for projectiles used with throwing-sticks.

Some complete, and many fragments of wooden foreshafts for arrows. A few of these were pointed at one end and notched at the other, for the purpose of mounting points therein. The majority of these foreshafts, however, were pointed at each end. One of the latter type was found inserted in and attached to a fragment of reed arrowshaft. Two fragments of notched foreshafts were found with fragments of arrowpoints in place, held there by sinew wrapping.

REEDS

Of this material there were:

Fragments of the tapered head ends of arrowshafts.

A cut and tapered piece of reed inserted into another section of reed cut for the purpose.

Fragments of the nock end of reed arrowshafts with wrappings and shreds of feathers in place; two specimens showing that they had been cut from the shaft. All of the nock ends when wrapped had been reinforced by driving pieces of reed or wood into them.

Small reeds which had had feathers attached to one end, parts of the bindings and feathers being still in place.

A short piece of reed inserted into what appears to be a dried vegetable substance.

Pipes were found made from two sections of the stem of a reed. One end is cut off close to, and the other at a distance from the joint; the dividing partition between the sections is punctured. The short ends served as mouth-pieces while the longer ends served as bowls, these being in many cases badly charred and shortened through use. A few of the bowls still contained the dottle, one of which was of cedar sprays.

Tubular containers were made of reed; three of these were found between two clumps of grass, under the edge of a large stone, near the bottom of the trench and below the grass floor-covering. They were filled with what appear to be seeds of *Amaranthus paniculatus*,² and were stoppered with grass plugs. The tubes were cut similar to the reed pipes, but were longer, and the partitions between the sections were not punctured.

² Identified by the Bureau of Plant Industry, Washington, D. C.

ANTLER PESTLES AND TOOLS

The following specimens were found:

Several pieces of antler, cut and rubbed smooth at the ends, that may have been used as pestles.

The basal segment of an antler, hollowed out $\frac{9}{16}$ of an inch in diameter and $\frac{5}{8}$ of an inch deep, on one end, the inside of which is charred.

A fragment of an antler implement, possibly a flaking tool.

An implement, the inner surface of which is concave, and the ends of which are beveled. It was probably used as a skin scraper.

Pieces of split antler, the cut surface and edges finished smooth as by rubbing.

BONE IMPLEMENTS

Bone implements, awl, chisel and gouge shaped, were quite plentiful, and well polished from use. They do not differ in type from those found so abundantly in Arizona and New Mexico. Two fragments of bone have as designs scorings of parallel straight lines. One bone fragment is decorated by a series of black paint dots running lengthwise, and another shows traces of having been smeared with red paint and striped with black.

Three implements made of scapulae, probably those of deer, were broken away so as to retain the spine and one fossa. The edges of the implements are worn quite smooth and thin at the point, and

one has what appears to be some vegetable substance adhering to it. For use as scoops these implements are sturdy and fit well in the hand.

GOURD VESSELS

Fragments of gourd vessels, many of which have been mended by placing a caulking of soft fiber over the crack before lacing together with fiber strings, were recovered. A few fragments appear to have been perforated with a friction drill, and one has many indentations, apparently made with a hot, pointed instrument.

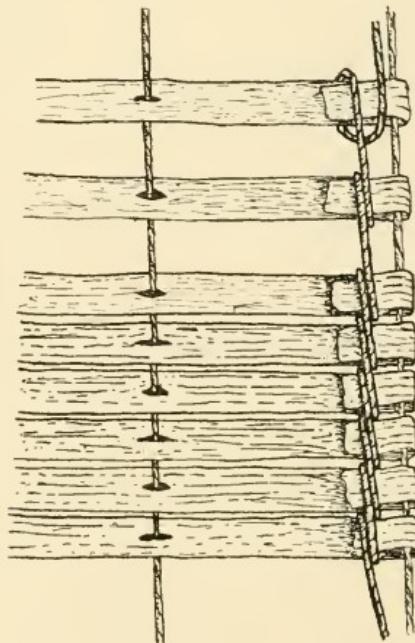
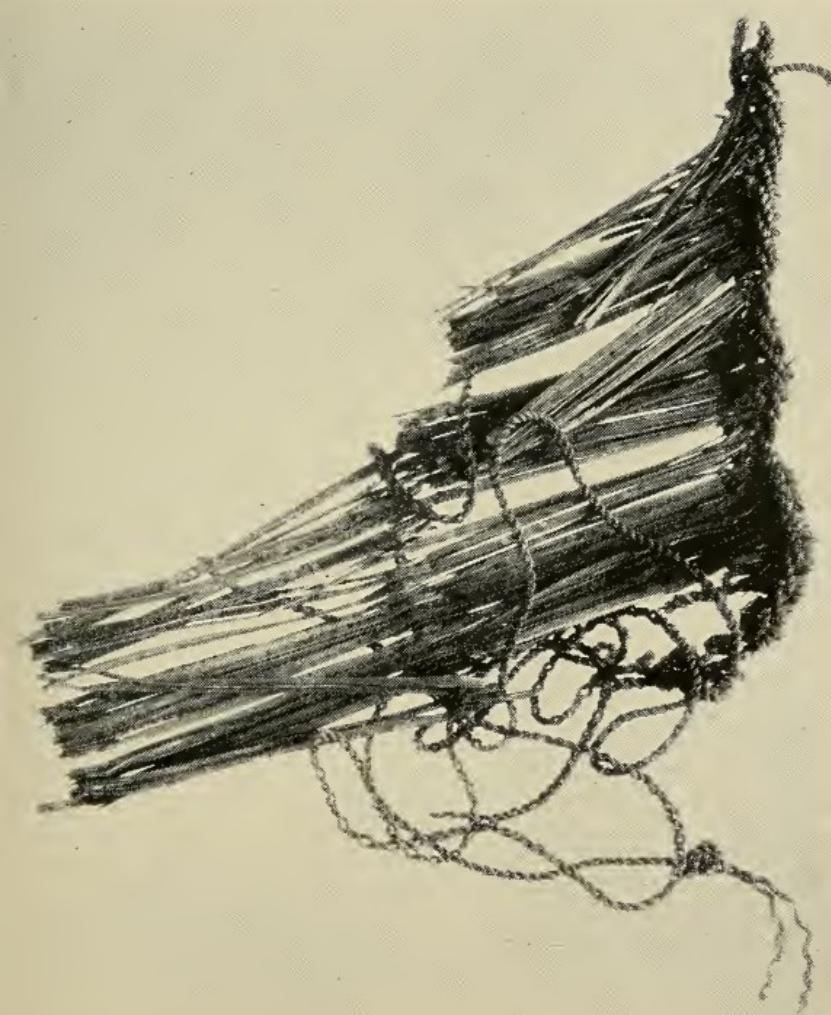


FIG. 3.—Detail of wrap-woven edge and warp strand of mat shown in pl. XI



FRAGMENT OF GRASS MAT
Length, 6.3 in. (16/8688)

MATTING

Many fragments of matting of yucca leaves were found, both of the checker type, and of the over-two under-two twilled-weave technique, also three small mats, two of which are of checker-weave, and one of twilled, and a small checker-weave object with several strands allowed to extend out from one side.

There were also fragments of a mat made of unidentified grass, the edge wrap-woven with a two-strand twisted fiber string. Three inches from the edge the matting was held together by piercing and stringing the grass leaves on a two-strand twisted fiber cord (pl. XI and fig. 3). Fragments of a similar mat were found under the remains of a child in cave 3, around the corner and a little to the north of the shelter.

BASKETRY

A pouch about four and one-half inches square, made by folding a small checker-weave mat in the middle and stitching the ends and one edge together, was found buried a few inches below the surface and next to the outer side of a stone, forming part of the south wall of house 5. It was filled with about an equal quantity of corn and squash seeds. Part of the matting at the opening of the pouch had been broken away. It was closed by stuffing in a small quantity of soft grass and stitching with a narrow yucca leaf; a fiber cord was tied both ways around the pouch (fig. 4).

A cylindrical checker-weave basket four inches high, containing a piece of hematite, five small pieces of sinew, and a quantity of fine fiber, may be part



FIG. 4.—Pouch containing corn and squash seeds. Length, 5 in.
(16/8690)

of a fire-making outfit. They were found while scraping off the floor of the shelter preparatory to

excavation. The only fire-making tools found below the surface were drills and hearths.

Two sifting-baskets of the tray type were made of yucca leaves, with the strands separated $\frac{1}{16}$ to $\frac{1}{8}$ of an inch. Attached to each of these is a fragment of a rim or binding, made of several yucca leaves one laid on another and bound to the edge of the basket with an open-coil stitch. Many fragments of basketry with similar binding were found.

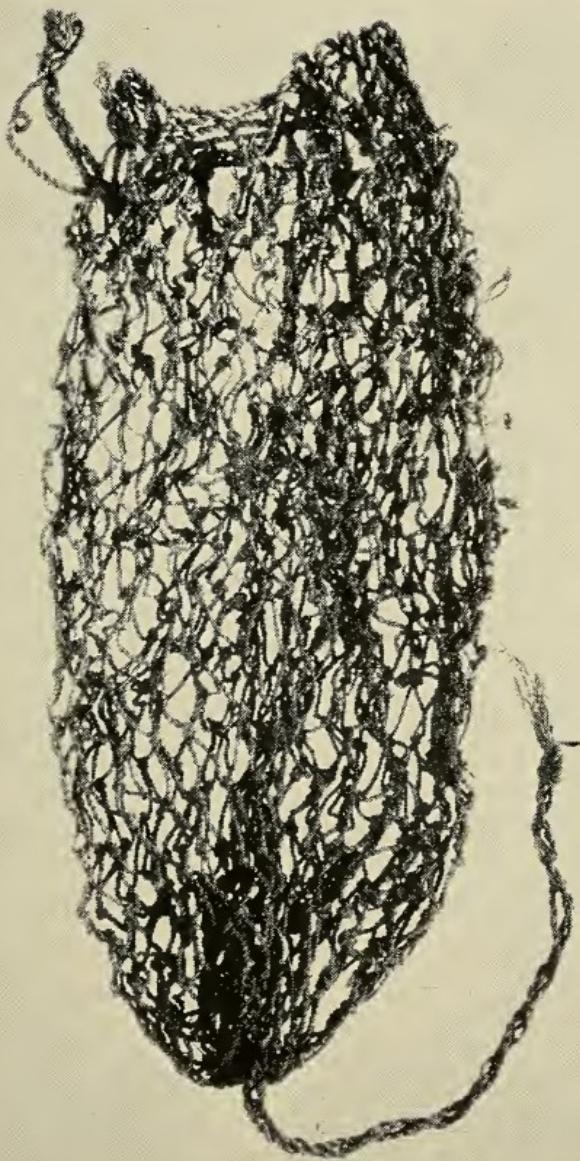
Of several fragments of coiled basketry, all in a very poor state of preservation, three are open-coiled, and nine split-coiled. The foundation of most is splints; one of the open-coiled fragments has a foundation of the small stems of some plant. A fragment of a base of another specimen was repaired by stitching with yucca fiber.

A piece of coiled basketry, about two inches in diameter, had both the foundation and the coils of yucca leaves. Two narrow leaves on edge form the foundation and split leaves form simple interlocking coils.

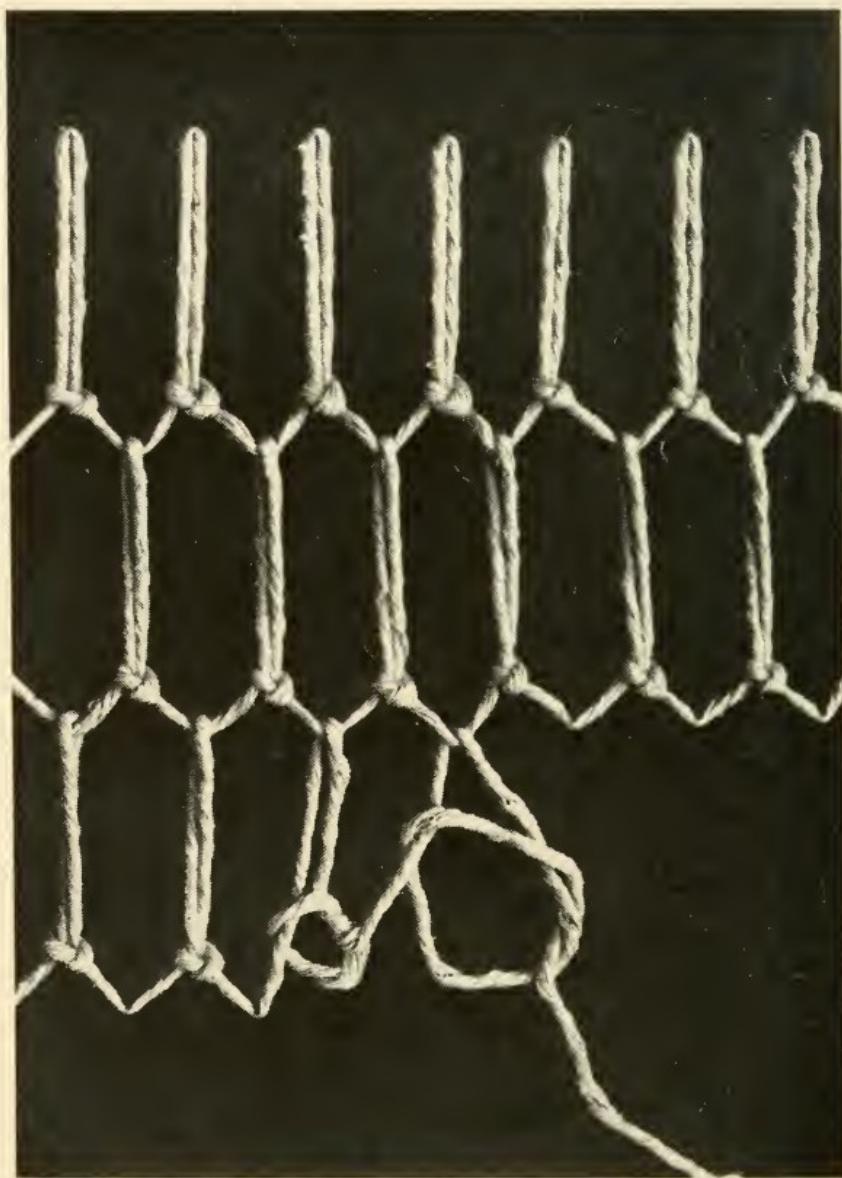
Many small fragments showed a weaving technique similar to the sandals found in the shelter, to be described later (pp. 43-49).

NETTING

Two fragments of netting were made of fiber strings, tied with a netting knot, the meshes approximately $1\frac{3}{4}$ and $2\frac{1}{2}$ inches respectively.



NETWORK BAG
Length, 12 in. (16/8719)



DETAIL OF NETTING TECHNIQUE OF NETWORK FRAGMENT

A network bag 12 inches long, of fiber string, has a mesh averaging $\frac{3}{4}$ of an inch. A draw string runs through the upper or last mesh; a twisted cord 9 inches long with a knot at its end is attached to the center of the bottom (pl. XII).

The meshes of two other fragments of netted bags measure $\frac{5}{8}$ and $2\frac{1}{2}$ inches approximately.

Other fragments of netting were made of split yucca leaves. The intersections are not tied, and they are attached to sticks of wood. The net apparently was made on a frame, the sticks forming part of it, and the strands of yucca were stretched across, first in one direction and then in the other. Where a strand crossed another it was wrapped one turn around the one already in place.

A fragment of network, in bad condition, made of split yucca leaves, shows an irregular sized mesh consisting of a series of loops, tied with slip knots, interlaced with other like series. Plate XIII depicts a cotton string netted to illustrate this technique.

Open-coiled work without foundation, made of fiber strings, was exemplified in a number of fragments. One specimen, when held in its proper position, forms what may have been a cap. Near the edge there are ten coils and six loops to the square inch and near the center seven coils and five loops. Another fragment is of interest because of the extra twist used in making coils.

STRING

Examination of the large number of pieces of string show that a variety of fibrous vegetable material was used in making them. The majority appear to be made of the fibers of the leaves of different species of yucca which grow in the neighborhood.

Many pieces of string of a softer fiber were colored red and yellow; a few are made of grass and some of a material as soft as cotton.

Many times, split yucca leaves and untwisted fiber strands were used as binders or tie strings. Most of the string found was twisted, varying from $\frac{1}{2}$ to $\frac{3}{8}$ of an inch in diameter, and of one, two, three, four, and five twisted strands. A few four-strand strings were made by twisting together two two-strand strings.

Sometimes in making string of a leaf, the point was left intact, thus keeping the end from fraying, and forming a lacer-like tip. A few fragments of sandals have tie-strings of this type attached to them.

Fringe-like fragments made of one- and two-strand cords of twisted fiber, the units of the fringe hanging down, were probably formed by tightly twisting and looping sections of the main cord. One fragment has two complete units $15\frac{1}{2}$ inches long.

Many pieces of twisted cord have tapering ends. In one case two such pieces are tied together with a square knot, forming a cord almost eight feet long, with the tapered ends free. A twisted fiber cord,

complete in itself, one end tapered and the other end formed in a loop, was found in a small coil. Several tie-twined bits of fiber string were also collected.

KNOTS

The square or reef-knot was generally used. Out of over one hundred knots examined, only three were granny, and two square bow-knots. Half-hitches and slip-knots were also used, the former probably in tying to an object, the latter in snaring.

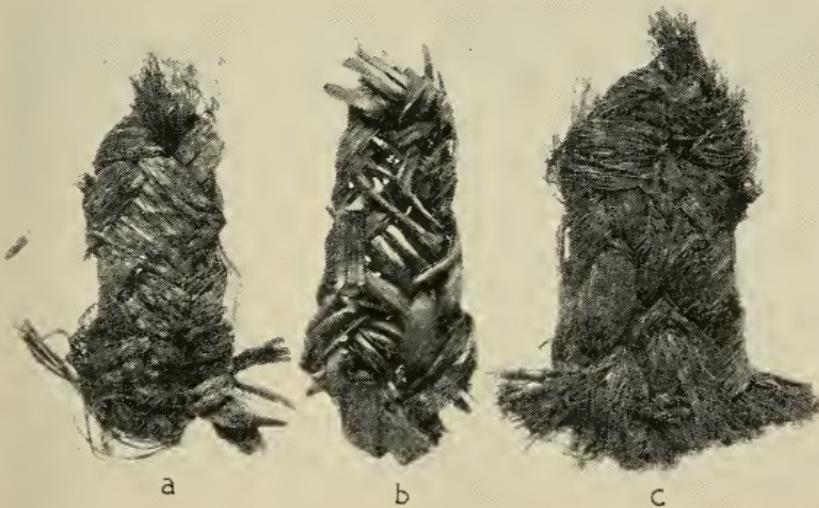


FIG. 5.—Sandals of yucca, braided, with ends woven in. Maximum length, 6.5 in. (16/8814, 8817)

SANDALS

A great many sandals made of yucca were found, but unfortunately, almost all of them are badly worn and have but few tie-strings still attached.

The sandals may be said to have been braided in two ways: First, several strands braided together; second, one or more strands braided with two opposed elements. The plaiting of the former is irregular, the ends of the strands are woven back through the braid and it is impossible to trace the whole braid without destroying the specimens (fig. 5). Thickness and strength were added to the larger sandals

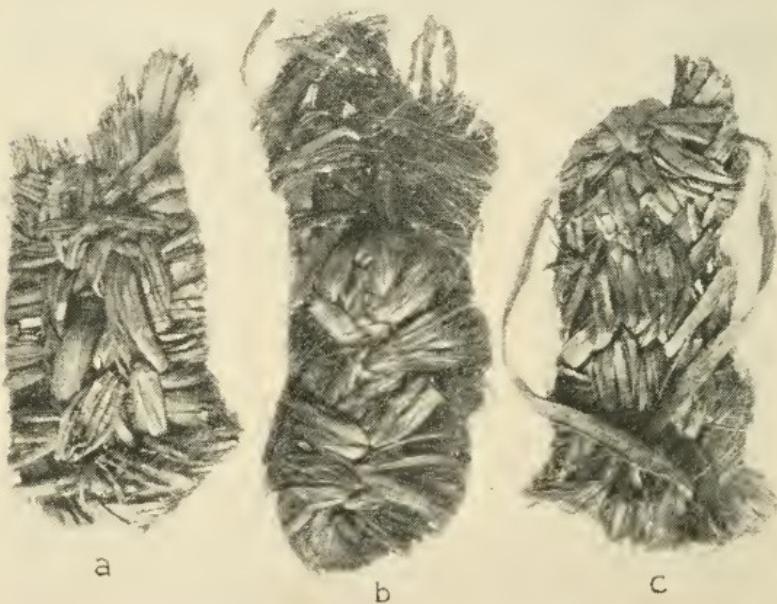


FIG. 6.—Sandals of yucca, reinforced. Maximum length, 8.5 in.
(16/8812, 8817)

of this type by weaving in extra strands after the braiding had been completed. The two specimens, *b* and *c*, fig. 6, are braided, the latter having been

reinforced with strands woven in lengthwise, while the former appears to have been reinforced at the ends with an overcast stitch that pierces the center, and coils around the sides of the sandal. The coils have been worn off on the under side.

The braiding with two opposed elements varies but little (figs. 7-9). In fig. 7 the strand is kept flat

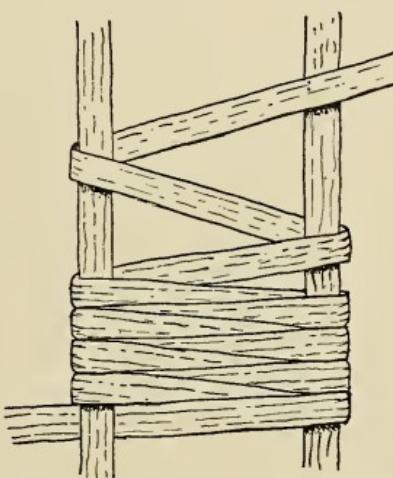


FIG. 7.—Detail of braiding technique with opposed elements, strands kept flat.

while braiding. In fig. 8 the technique is the same as in fig. 7, except that the strand is turned over each time it is passed between the opposed elements. Figure 9 and fig. 7 show the same technique except that in the latter two strands are braided instead of one.

When necessary, new strands were added to carry on the work. Loose ends were allowed to project

from the under side of the sandal. For opposed elements, broad leaves, narrow leaves, shredded fiber, and two-strand twisted fiber strings were used.

The sandal *c*, fig. 10, is made of broad leaves and is constructed in reverse of the technique of fig. 9. *B* of the same plate is made of narrow leaves and is constructed according to the technique of fig. 9, with

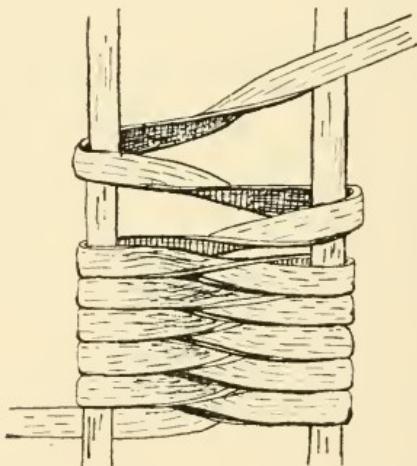


FIG. 8.—Detail of braiding technique with opposed elements, strands turned.

extra strands woven in lengthwise. *A*, fig. 10, is made according to the technique of fig. 8, one large leaf forming the two opposing elements.

The three sandals depicted in fig. 11 are woven in the technique of fig. 7. The opposing elements of *a* are of yucca which has been shredded, except at the ends which are tied together at the top. This sandal appears to have been made from the bottom

up, and the shredded yucca strand used to form the opposed elements was wrapped several times spirally around a small bundle of fiber at the start, to help keep the elements apart. The sandal *b* is made of short narrow leaves, three or four of them being used for each opposing element; a single narrow leaf is

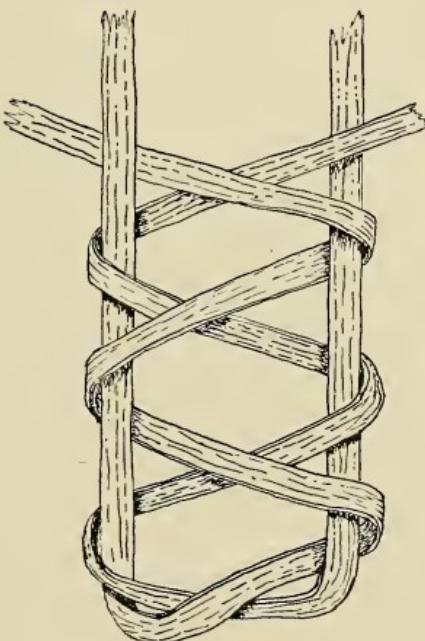


FIG. 9.—Detail of braiding technique with opposed elements, two flat strands.

braided for about five rows from the bottom, after which two or more leaves are woven in at a time.

TIE-STRINGS

Judging by the tie-strings found attached to other sandals and fragments of sandals, the tie-strings of

the sandals shown in figs. 5, 6 and 10 were of yucca leaf or fiber, and were attached as shown in fig. 12.

Six sandals similar to the one illustrated in *b*, fig. 11, were found. All of them are small, ranging from 4 to $5\frac{1}{2}$ inches in length, and were probably worn by children. They appear to have been held to the foot

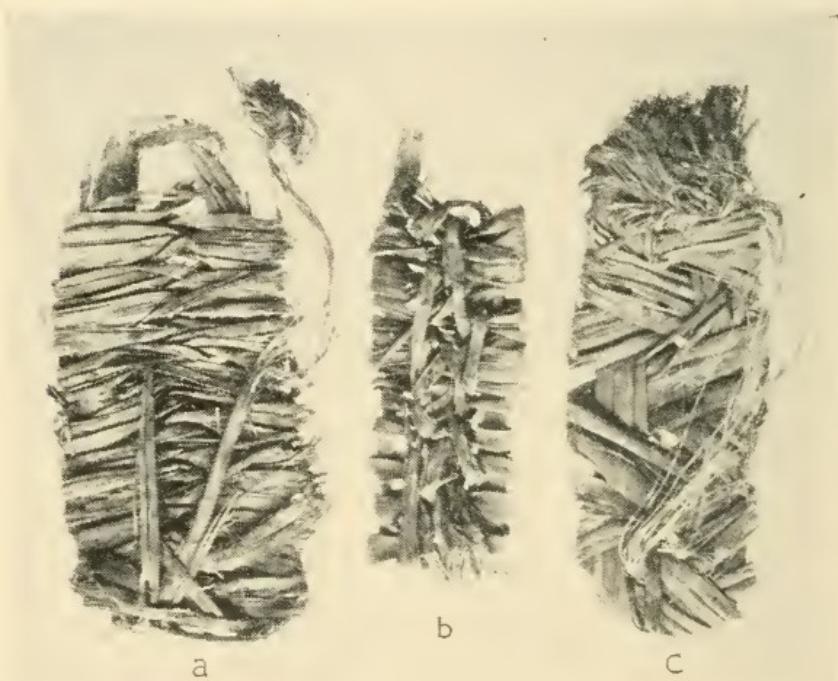


FIG. 10.—Sandals of yucca, braided with two opposed elements. Maximum length, 7.8 in. (16/8812-13)

with a toe loop, and two side strings, which are attached to the edges of the sandal half to three quarters the distance from the toe end to the heel, passed over the instep, and then tied to the toe loop.

The opposing elements, or framework, and the tie-strings of the child's sandal (fig. 11, *c*) were two-strand twisted fiber cords. One long cord was used to form the framework and the front tie-strings, as shown in fig. 13.

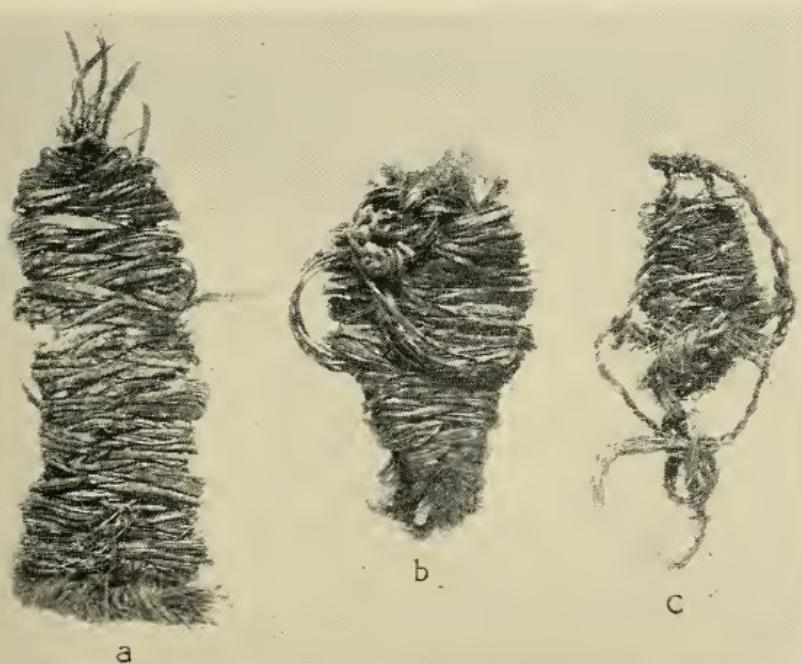


FIG. 11.—Sandals of yucca, braided with two opposed elements, *a* with shredded strands and *c* with fiber string. Maximum length, 7 in. (16/8813-14)

A fragment of what may have been a sandal is of checker-weave, with two strings attached to it, and shows wear on one side.

PUBLIC LIBRARY
BIRMINGHAM, (ALA)

FABRICS

A fragment of woven material of blanket-like appearance, about 14 by 15 inches, is made of coarse twisted strands of fine fiber, held together at intervals by twined similar strands, and small tightly twisted two-strand fiber strings (pl. XIV).

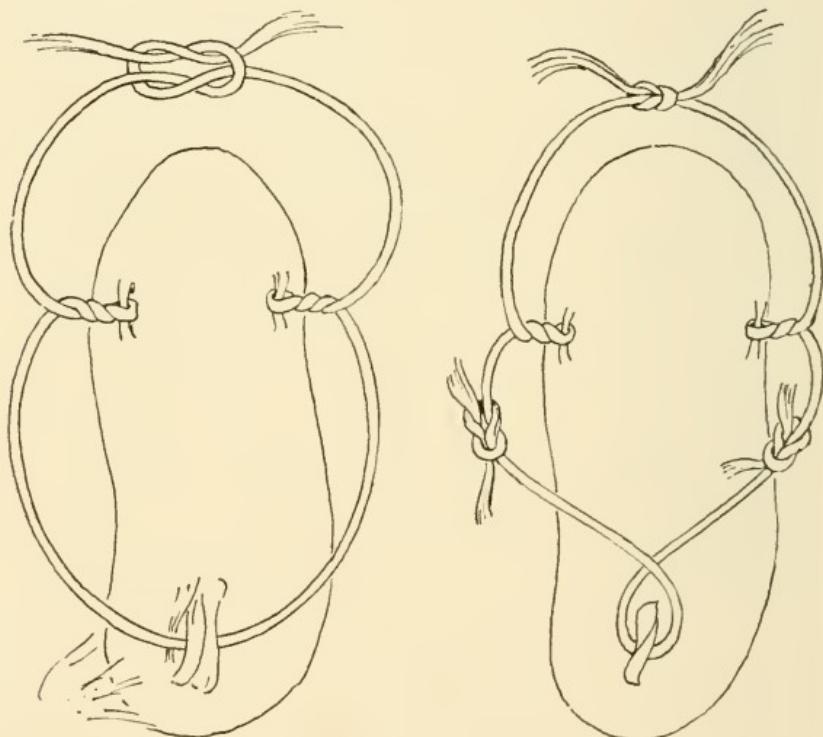


FIG. 12.—Technique of tie-strings of sandals.

Another specimen is a small corner piece of fabric in which the warp strands, or two-strand twisted strings about $\frac{1}{8}$ of an inch in diameter, are twined tightly together at $1\frac{1}{2}$ inch intervals by smaller strings. The edges are turned, and the twining is

similar to that of the previous specimen described, and in both specimens the technique resembles that used in making rabbit-skin blankets.

Many twisted strips of skin such as are used for making skin blankets were also found. Most of them are wrapped spirally around fiber cords; a few have bits of fur or hair still in place.

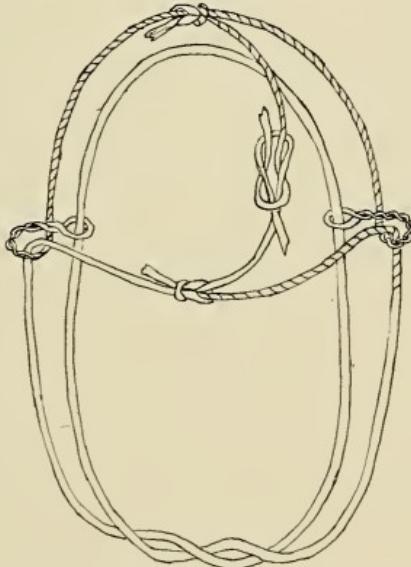
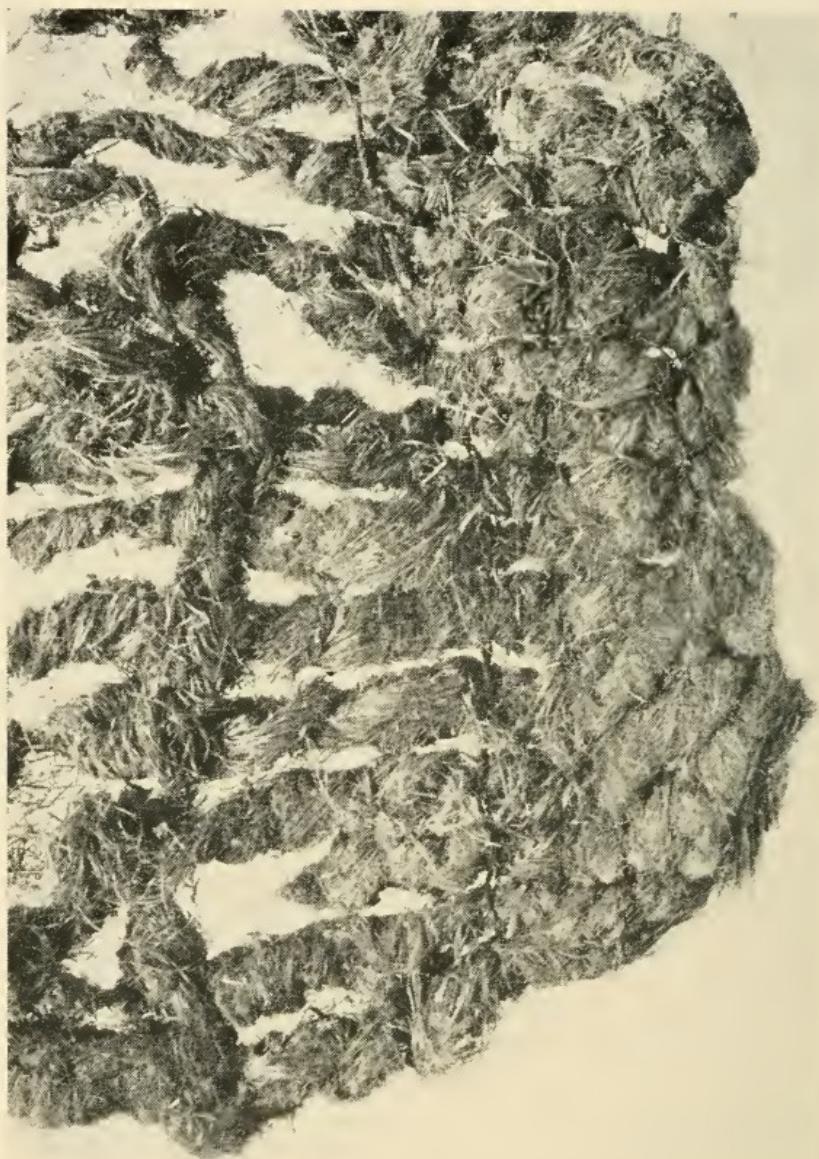


FIG. 13.—Technique of framework and tie-strings of child's sandal *c*, fig. 11.

Of materials prepared for use in weaving there were:

Quite a number of small bundles of shredded fiber; leaves of sotol (*Dasylinion* sp.), yucca and other plants, sorted or split to a size; grass, etc. Most of the bundles are loosely wrapped near the center with a tie-string of the same material as that in the bundle.



BLANKET-LIKE FABRIC OF SOFT FIBER
(16/8729)

FIBER BRUSHES

A brush was made by folding a number of strands of fiber so that the ends met, and then wrapping them around with other strands of fiber.

An object made of fiber strands folded over a loosely twisted fiber string and tie-twined below the string was in a roll when found and had the appearance of being a brush.

CACTUS THORNS

Several cactus thorns were bound together with a fiber string.

BINDINGS

Numerous rings, from less than two inches to over six inches in diameter, made of yucca leaves and other fibrous plants, were discovered. They probably were used as bindings in transporting grass and other material to the shelter. They were made either by wrapping a single leaf, or leaves tied together, end to end, with a square knot; or by running fiber strands around the bundle of material several times and then repeatedly passing the loose ends under and around the loop thus formed. Several rings made of narrow leaves have the appearance of having been twisted together before binding, but the ends finish in a wrap and not in the knot which would be necessary if the strands had been twisted

before binding. All these rings are quite flat, probably made so by being trampled upon after having been discarded on the shelter floor.

Many plain bindings and wrappings were found, and they were almost invariably tied with one or more square knots.

GRASSES AND LEAVES OTHERWISE EMPLOYED

Grasses were put to other uses than those already mentioned. Among articles of this material found were:

Rings of grass wrapped with yucca leaves, or other fibrous vegetable substances.

Fragments of pads of matted grass with parts of tie-strings attached.

Fragments of an object made by tie-twining together strands of grass with strips of yucca leaves. The grass stems used in making the strands do not exceed 9 inches in length, so the strands were made continuous by overlapping small bundles of stems as the work proceeded. Some of the strands are loosely wrapped with narrow strips of yucca leaves. The widest fragment has seven strands and is $5\frac{3}{4}$ inches wide. Judging by the fragments found, the bottom of the object was a crude network of yucca strips tied to the lower ends of the tie-twined strips. The rim was finished, after the final tie-twining knot of the upper coil, by tying the ends of the tie-twining strips in pairs with a square knot. The work probably was carried on from left to right as all the loose

ends of the knots to the left are free, while the ends to the right are caught under the following knot. The tie-twining is separated by intervals ranging from $1\frac{1}{2}$ to 4 inches. The fragile construction of this object must have made it unfit for heavy duty, and the finding of the fragments just west of the beds under house 3 suggests that they may have been pieces of a cradle or baby-carrier which was discarded when the lower bed was abandoned and the upper bed made.³

Fragments of an object made of sotol leaves twined together to form a bag-like container, the bottom part of which is missing. A large fragment of a similar object, with a worn sandal tied across the opening, was found in a cave at the mouth of Lower Rotten Draw.

Fragments of a hammock-like specimen made of sotol leaves twined together at intervals with split leaves found in a fill 4 feet 2 inches below the surface. This object, when found, was 35 inches long by 18 inches wide near the center, and was broken in two by a worked stone which had been thrown in on top of it. One of the ends, a ball of knotted leaves, was broken off and lay a couple of inches away. Scattered over the object were some light twigs and leaves, and toward one end was a handful of grass held together with a leaf.

³ Kidder and Guernsey in Archeological Explorations in Northeastern Arizona, *Bulletin 65*, Bureau of American Ethnology, Washington, 1919, illustrate, pl. 72, cedar-bark cradles the sides of which are twined together.

LEATHER REMNANTS

Many fragments of different sorts of leather besides the strips previously mentioned (p. 30) were found. The majority seem to be scraps, with the



FIG. 14.—Pendants of stone and shell. Length of mussel shell, 1.6 in.
(16/8682, 8683, 8696)

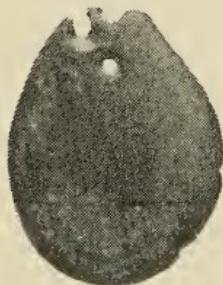
holes made in stretching still at the edge, and cuttings left after making garments or other articles. Some of the pieces have been scored with series of lines which form irregular squares. Four fragments appear to have been parts of objects made for some definite use, but there is not enough left fully to determine what purpose they might have served.

ORNAMENTS

Few objects of personal adornment were found. These were:

Two flat pendants of stone, one of which has had two perforations broken out, but in place of which a third one had been drilled. A fragment of a pendant made of the shell of a fresh-water mussel. A pendant made of a land-snail shell, with a piece of a fiber cord attached for suspension (figs. 14-15).

Two short strands of beads made from seeds, and a short strand of beads of cut sections of reed, threaded on fiber strings (fig. 16).



CLAY FIGURINES

Two complete and twenty-four fragments of small grotesque human figures made of untempered and unfired clay seem to have been the only fictile objects possessed by the ancient inhabitants. The figures

FIG. 15.—Pendant of stone. Length, 1.2 in. (16/8684)

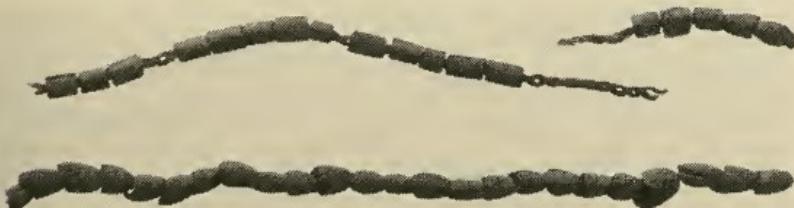


FIG. 16.—Seeds and sections of reed strung like beads. Maximum length, 4.6 in. (16/8704)

consist of the head and torso; the noses are long and sharp; the mouths are small round punctations; the

eyes are part of the black paint decoration which covers the upper parts of the figures. One fragment has sharp pointed breasts, evidently representing a female. Another has traces of red, yellow and black painted decoration. The lower parts of the torsos

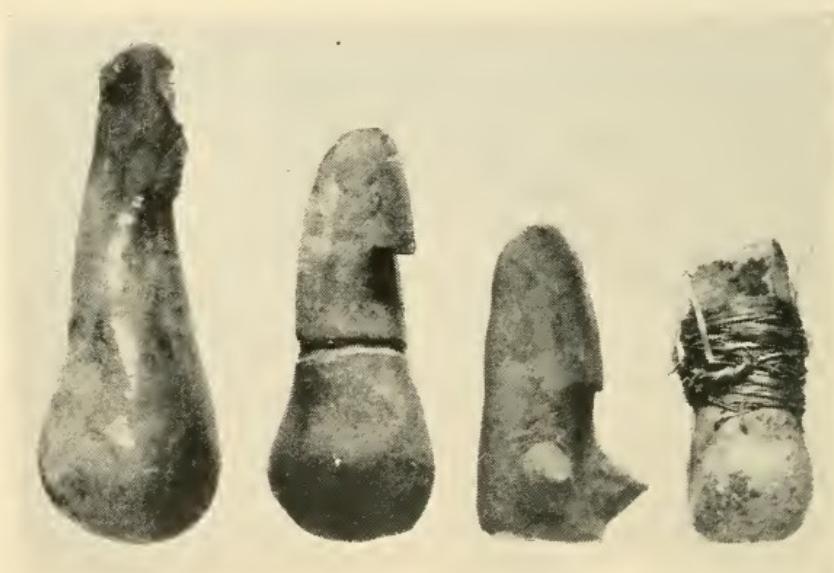


FIG. 17.—Figurines of unfired clay. Maximum height, 2.9 in.
(16/8675, 8678, 17/8705)

are round. The backs are incurved and some have the natural indented line down the buttocks. One figure, with head missing, was wrapped around its center with grass (fig. 17). These figurines are probably of the same class as others more or less like them still found among many of the present day tribes, and are a symbolism of fertility.

VEGETABLE FOODS

Among the vegetable substances, most of which could be used for food, were:

Quantities of prickly pear (*Opuntia* sp.) and other small seeds, corn, mesquite beans (*Prosopis glandulosa*), acorns (*Quercus*), Mexican walnuts (*Juglans*), Mexican buckeye or soap-berries (*Sapindus*), piñon nuts (*Pinus edulis*), desert-willow pods (*Chilopsis linearis*), pumpkin seeds (*Cucurbita pepo*), small gourds (*Cucurbita foetidissima*), squash seeds, seeds and pods of yucca, roots, some of which were no doubt used as amoles are today, and strings of dried cactus fruit of which some were tie-twined together. Cacti of different species, many devil's heads (*Hammacophala texensis*) were split in two horizontally to get at the inside. Great care must have been taken to rid them of the upper spiniferous halves, as none were found. Small cacti (*Echinocactus* sp.) were dried as were star cacti (*Astrocarpus fissuratus*). The latter is said to be used by Mexicans in the same manner as the peyote button. *Opuntia* leaves were all of a large size; one leaf was cut and filled with ash in such a manner as to resemble a quarter-cut of pie, $2\frac{1}{4}$ inches thick and $4\frac{1}{2}$ inches long on the straight sides. A sharpened piece of wood had been thrust through the center.

Large quantities of corn-cobs were found, and fragments of sotol crowns (*Dasyliion* sp.). Innumerable quids or "cuds" of fiber, which are no

doubt remnants of the latter discarded after chewing, were scattered through the débris.

ANIMAL BONES

While quite a variety of animal and bird bones were found, they were not numerous, considering the size of the shelter and the quantity of vegetable refuse it contained. Whether this points to dry seasons and poor hunting during part of the summer is a question. Most of the bones were broken in order to obtain the marrow. Among the bones that it was possible to identify are those of deer, rabbit, badger, coyote and rat; while the fragments of a large jaw and a tibia are probably those of a bison. Fragments of the carapace of a turtle were also found.

CONCLUSIONS

The rock shelter in Bee Cave Canyon seems to have been occupied at different intervals and for no long time at any period; for the artificial deposits, which varied from almost nothing at the edge, to about four feet at the rear of the shelter, were separated from one another by layers of grass only a couple of inches apart, as if the occupants had successively inhabited and abandoned the site many times, leveling and improving the floor with grass each time they or others returned to reoccupy it. In excavating the successive floorings, each layer of deposits was removed, and within them were found

many artifacts and other objects; but there was no indication of any cultural difference in the layers, regardless of their depth.

Although many fragments of notched arrowshafts were found, there was no trace of a bow. The occurrence of the atlatl and the notched arrow, in deposits indicating no great range of time, would seem to suggest that the throwing-stick and the bow had been used contemporaneously.

A notable feature is the scarcity of pottery, the only trace of it being some unbaked figurines, and three small fragments of vessels, one of which (part of a bowl) is of thin brown ware with black painted decoration. These potsherds were found on or near the surface, and are doubtless intrusive.

The only small fireplaces found in the area covered by grass were the one south of the combined east and west wall of house-sites 3 and 4, and the one in house-site 6. These were undoubtedly made by sheep-herders who use the shelter in the cold months as a fold. The litter of cardboard boxes, pieces of leather and other rubbish on the surface south of house-site 6, and the finding of a small tin box containing beans, and burned wood from boxes, on the surface in the house-site, confirm this opinion.

Leaving these two fireplaces out of consideration, the only fireplaces left are the two large pits east of the rock pile at the center of the shelter, and house-site 4, which had been used as a fire-pit after falling into disuse as a dwelling.

Bearing in mind what has been said as to the floor-coverings and fire-pits, the evidence points to the supposition that the rock shelter was occupied only as a summer camp. The inflammable material used as floor-coverings prevented building fires for warmth in the houses in the winter time. Cooking or roasting in large pits suggests a communal mode of living. Probably only one pit at a time was used. The larger one outside of the covered area, judging by the fact that it was bare of refuse, appears to have been in use prior to the one within (see p. 22).

The finding of such large quantities of pieces of sotol crowns and of corn-cobs suggests that corn was raised in the valley, and that sotol was the main food supply while waiting for the corn to ripen.

Other circumstances pointing to the theory that the camp was used only in the summer time are that, while numbers of hammerstones and manos were transported into the shelter, but few metates, which are heavy, were found. Also, the finding of so many pieces of leather, all of which, with the exception of four, appear to be discarded cuttings, suggests that the people left the lowlands in the spring, traveling light, and that such skins as were secured during the summer were made up into garments or other objects and taken away with them in the fall.

No whole gourd vessels were found, and most of the fragments had been carefully mended—facts which might indicate either that the gourds also were brought in by the seasonal immigrants, or at least that gourds were scarce.

The only human remains discovered in the shelter in 1929, besides the piece of a frontal and the left half of a lower jaw-bone found in house-site 6, were: three more left halves of lower jaw-bones found eight inches below the surface in a triangle within two feet of one another and about midway and seven feet south of 9 I and 10 I (see map); a few charred fragments of what appear to have been a tibia in cave 2; and a tibia and a fragment of a skull in the rear of cave 1.

It would be interesting to know if there is any significance to be attached to the fact that four left halves of lower jaws were found.

It would be impossible to say how many people occupied the shelter at one time, but if the houses both in the east and the west halves of the shelter and the camp sites along the wall were all inhabited contemporaneously, sixty souls could easily have been accommodated.

The heavy grass floor-covering ended somewhere behind the large rock pile, but a grass walk was laid from there, between the loose stones on the surface, to a point beyond, leading past some of the westerly houses, in the direction of others and of the water supply; and this is naturally the first step in building up the floor of the western part of the shelter in a manner similar to that of the east.

APPENDIX

In a short account of his work done in Bee Cave Canyon rock shelter in 1928, Mr. M. R. Harrington refers to a burial he uncovered.⁴ As this was the only one encountered during the work done in this shelter, and as some of the accompaniments are different from those found during the later exploration, a quotation from the above mentioned report is pertinent. Mr. Harrington writes:

Beginning another trench between the pile of fallen stones and the cliff, and continuing it eastward along the rear of the shelter, we found almost immediately the remains of a flexed skeleton, minus the skull, with which appeared a bowl-shape coiled basket, part of a twined openwork cigar-shape basket, fragments of a bag made of fiber cord, many small beads made of cane, and part of a necklace made of sections of the legs of some large iridescent green beetle neatly strung on a fine fiber cord. Among the vertebrae was a wicked-looking flint spear-head, and near the pelvis lay a deposit consisting of three red paint-stones and two flint knives.

Notes on the Ethnobotany of Bee Cave Canyon, by Henry T. Fletcher, *Bulletin* 33, no. 3, West Texas Historical and Scientific Society, Sul Ross State Teachers College, Alpine, Texas, 1930, is also of interest, Mr. Fletcher having devoted much time to research and study in that region.

⁴ Indian Notes, vol. v, no. 3, Museum of the American Indian, Heye Foundation, New York, July, 1928.

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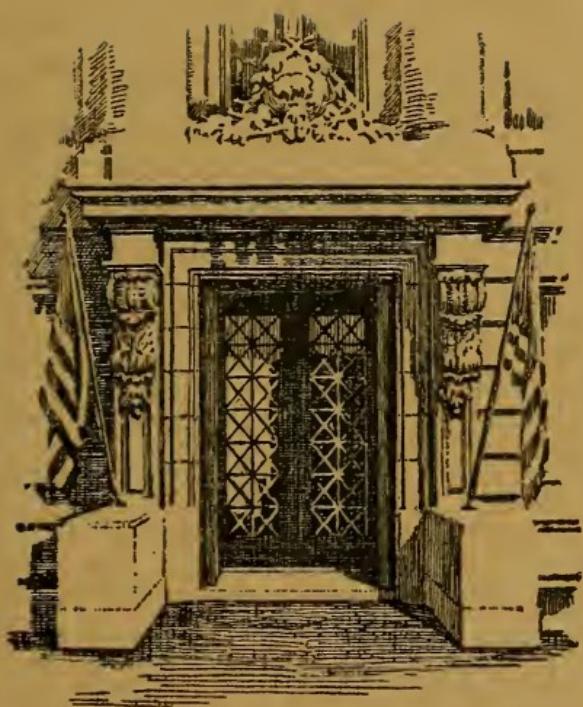
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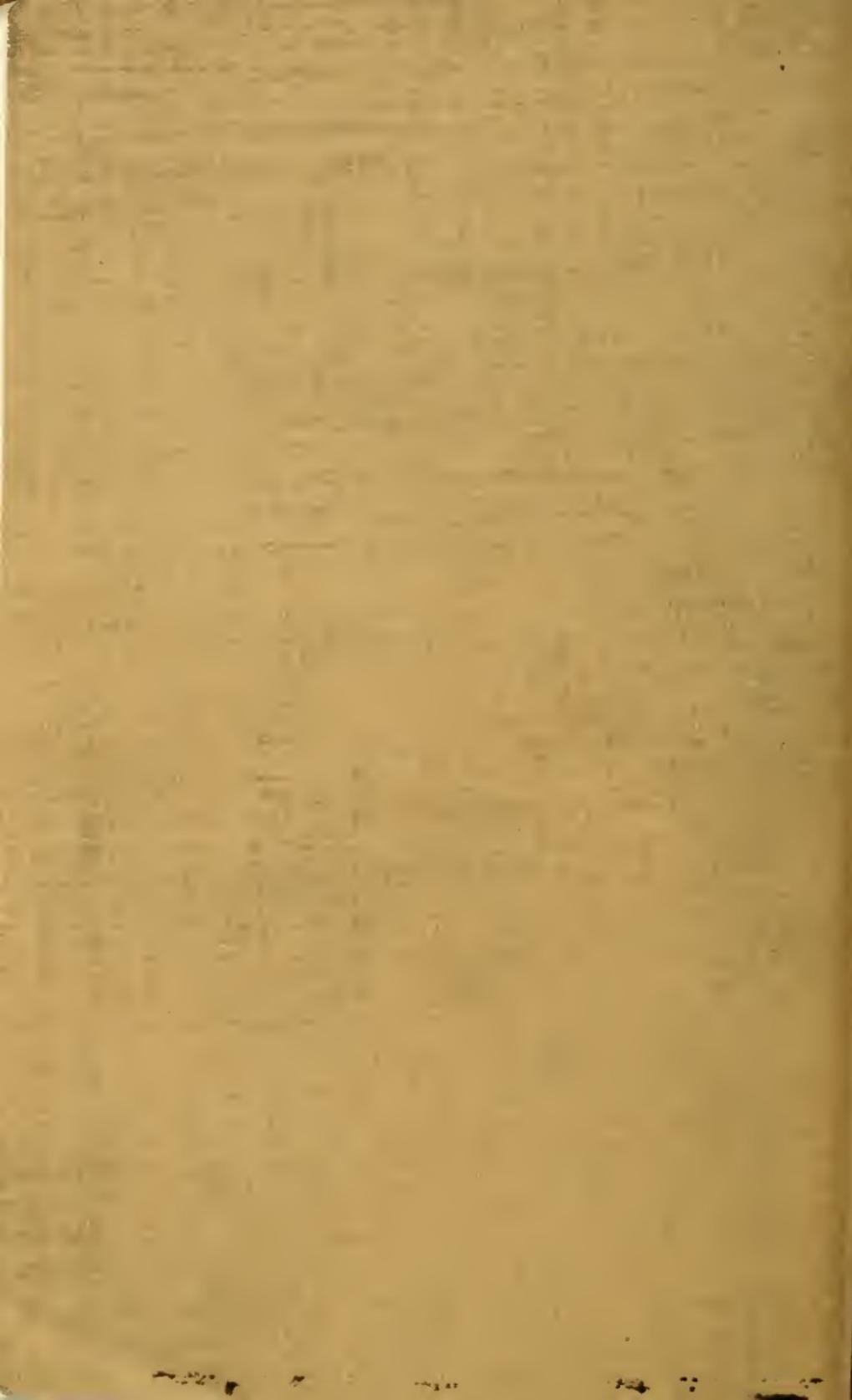
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INDIAN NOTES AND MONOGRAPHS

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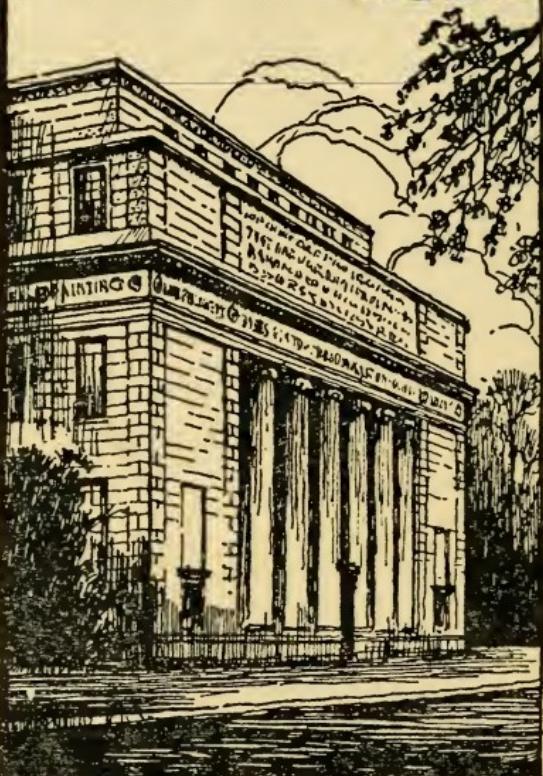
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- 42. List of Publications. Sixth Edition. May, 1926. (*Out of print.*)
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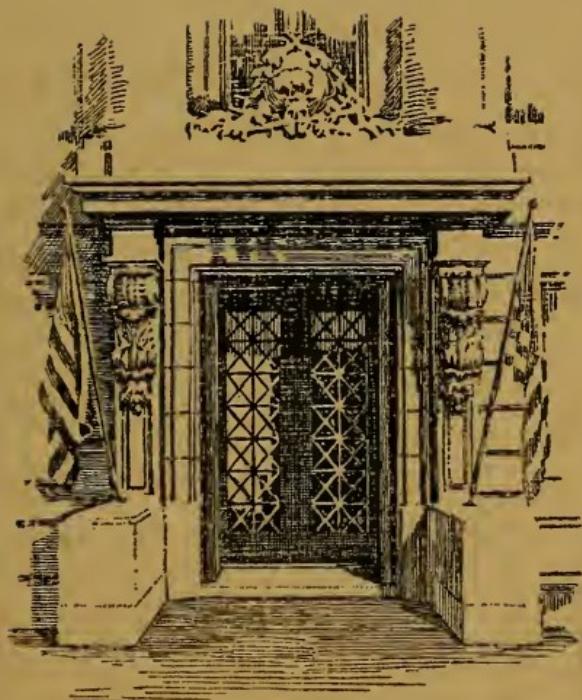
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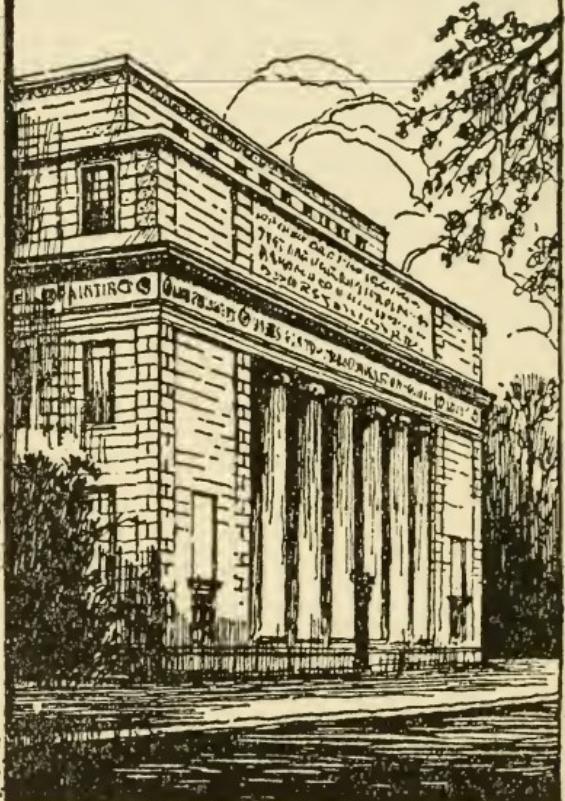
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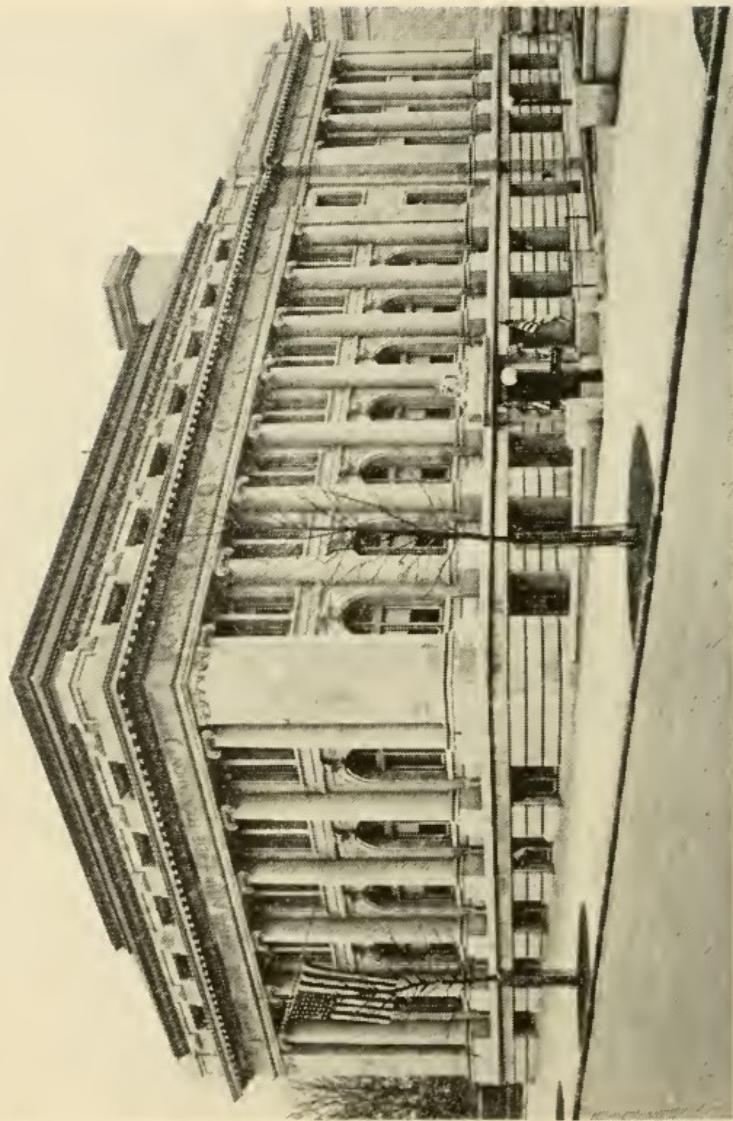
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AIMS AND OBJECTS
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MUSEUM OF THE AMERICAN INDIAN
HEYE FOUNDATION

THE Museum of the American Indian, Heye Foundation, located at the corner of Broadway and 155th Street, New York City, occupies a unique position among the institutions of the world. It is the only organization devoted solely to the collection and preservation of the culture of the aborigines of the Western Hemisphere.

INCEPTION

The Museum had its inception when its Founder and present Director, Dr. George G. Heye, pursuing his interest in the material culture of the American Indians, commenced the systematic accumulation of objects pertaining thereto. The first important collection was procured in 1903, a representative gathering of earthenware vessels from prehistoric pueblo ruins in Socorro county, New Mexico. In the following year a similar collection, found in a cave in eastern Arizona, was obtained, and trips by associates of Dr. Heye to Porto Rico, to Mexico, to Costa Rica, and to Panama, resulted in the acquisition of other important artifacts. These objects,

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with those previously assembled, formed a nucleus to which accessions have continuously been made, until at the present time the specimens illustrating the archeology and ethnology of the aborigines of the Americas number many hundreds of thousands.

GROWTH

The collections, placed originally in the home of the Founder, grew so rapidly that it became necessary to rent successive floors in a loft building properly to house them.

Realizing the handicaps attendant upon crowded quarters, Doctor Archer M. Huntington offered a tract of land adjacent to the Hispanic Society of America, the American Geographical Society, the American Numismatic Society, and the Academy of Arts and Letters, upon which, from funds supplied by other trustees and friends of the museum project, the present building was erected.

The building, containing three exhibit floors, a preparation laboratory with photographic dark room, necessary staff offices, and store rooms, was opened to the public on November 15, 1922.

ANNEX BUILDING

So greatly and so rapidly did the collections of the Museum increase, that within a few years they taxed the capacity of the main building and, owing to the limitations of space, it became necessary to present

to the public view only relatively small synoptic series of objects illustrating, in an admittedly meager way, the cultures of the Indians they represent. But the main object of the Museum is not to appeal to the general public, welcome as it is to view the exhibits. Rather it is our aim to afford serious students every facility for utilizing the collections in their researches. To this end, and to meet most pressing need for additional space, Dr. Huntington again came forward with a generous offer of a tract of land about six acres in extent, located at Eastern Parkway and Middletown Road in the Borough of the Bronx, which was accepted by the Board of Trustees. Subsequently, through the continued interest and liberality of the friends of the Museum, a fireproof building was erected on a small part of the site, in which all the specimens not housed in the main structure on Broadway are now installed. The remainder of the plot is occupied by replicas in cement of different types of Indian dwellings, to which others will be added, and a garden in which are raised various foods used by the aborigines.

STUDY COLLECTIONS

Here, at the Annex Museum, students find countless numbers of specimens, not behind glass, but available for intimate study. The storage collections are used by scientific investigators who come from all over the world to avail themselves of this privilege.

Upon the grounds of the Annex have been erected two totem poles procured from the Nass River valley in British Columbia.

LIBRARY

Likewise, the library outgrew the space available in the main building. In 1930 Dr. Huntington again proved his interest in our development by erecting a commodious modern stack building, with offices and study rooms, in connection with the Huntington Free Library and Reading Room at 9 Westchester Square, also in the Borough of the Bronx, and by endowing it sufficiently for maintenance and for the continued acquisition of important books. Thus this Library became the depository for the original James B. Ford Library, comprising, principally, the important Saville and Hodge collections.

ACTIVITIES

The Museum of the American Indian, Heye Foundation, has been active in field and research work, both archeological and ethnological, throughout the Americas—from the Arctic Circle to Tierra del Fuego, including the West Indies and the lesser coastal islands.

While the limitations of time since our organization have prevented the investigation of each individual site or tribe, nevertheless expeditions have covered many areas, and the collections lack but little to

present a complete and comprehensive picture of what is at present known about aboriginal life throughout the Western Hemisphere.

UNITED STATES

Commencing in 1908, Mr. M. R. Harrington, long a student of the ethnology and archeology of the Indians of the United States, conducted intensive ethnologic studies among many tribes and in many localities in behalf of the Museum. The results of his field trips were most prolific, and through them the Museum's collections have been enriched in a manner that seemed impossible at the time the work was commenced. Especially noteworthy among the objects thus procured are a large number of sacred bundles, or packs, from numerous tribes, formerly used in connection with many rites and ceremonies. Rare in themselves, these bundles are especially valuable to students both by reason of the insight into the esoteric life of the Indians which they afford, and because they are usually the repositories of various objects of the kind often buried with the dead and thus lost to science.

Many other ethnological expeditions have been made within our own borders. Notable among these were the journeys of the late Alanson Skinner to the Menomini Indians of Wisconsin; of Mr. E. H. Davis to the tribes of the Southwestern deserts and southern California; of Dr. Frank G. Speck among

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the Penobscot and related tribes of Maine; of Dr. F. W. Hodge and Mr. Jesse Nusbaum to the Havasupai of the Cataract cañon, Arizona; of Dr. T. T. Waterman among the Puget Sound Indians; and of Mr. William Wildschut among the Crows, Blackfeet, Shoshoni, and Arapaho, from which he succeeded in procuring more than 300 medicine bundles, including the sacred pipe and beaver bundles of the Blackfeet, and the skull bundles of the Crows, thus adding materially to the already remarkable collection of such objects in the Museum.

Studies among the Arikara, Dakota, Omaha, and Winnebago; at reservations in Oregon and Nevada; and of the ceremonial life of the Hopi have been supported additionally. From the latter the Museum was able to secure probably the most complete and comprehensive collection of Kachina dance masks and dolls in the world.

Pursuing its archeological work, as a parallel interest with the ethnological, the Museum in 1914 explored a Munsee Indian cemetery at Minisink, near Montague, New Jersey, revealing its historic occupancy. In 1915 the great Nacoochee mound in Georgia, a noted Cherokee site, was excavated, as were several mounds in North Carolina. Dr. Warren K. Moorehead, of Phillips Academy, with the late Mr. Alanson Skinner, explored several sites along the Susquehanna river in 1916. More recently, much work of the same general character has been done in New York state, especially on

Manhattan Island at Inwood, on Long Island, and in Cayuga and Jefferson counties. Among the most important of the investigations in New York City were those conducted at Throgs Neck and Clasons Point, at sites that were still inhabited at the coming of the Dutch in the seventeenth century. This work was made possible by the liberality of Mr. Samuel Riker, Jr., a trustee of the Museum, who manifested his interest in this and in other ways, and who also contributed the means for the publication of the results of the Throgs Neck and Clasons Point field work.

Productive of important results, both in the way of data and of collections, was an expedition to Kane county, Utah, in the autumn of 1920, by Mr. Jesse Nusbaum, where an ancient site of the so-called Basket-maker culture was thoroughly explored. For the important finds there made, the Museum is indebted to the late General T. Coleman du Pont, who afforded the means for conducting the work and for publishing the results. The investigations noted have been productive of many objects of pottery, stone, bone, shell, wood, fabrics, and basketry such as characterized ancient Indian cultures in different localities and during various periods.

One of the most important fields of archeological research in the United States in which the Museum has engaged was carried on in 1916 and 1917 by Mr. Harrington at identified Caddo sites in Arkansas. This, and subsequent work in Tennessee, was done

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at the instance of the late Mr. Clarence B. Moore, of Philadelphia, whose own investigations of Indian mounds in the eastern and central South, covering a period of many years, have added so much to our knowledge of the archeology of those regions.

The munificence of the late Mr. Harmon W. Hendricks, a trustee, whose interest never waned until his death in 1928, made possible the excavation of the ruins of Hawikuh, one of the famed "Seven Cities of Cibola," occupied by the Zuñi Indians of New Mexico from prehistoric time until 1670. This work was in progress by the Hendricks-Hodge Expedition from 1917 to 1923 under the continued direction of Dr. F. W. Hodge. From the excavations here, the collections of the Museum were enhanced by many fine examples of the ceramic and turquoise mosaic arts, and of interesting bone work. Reports on some special phases of the findings here have been published.

In 1923 a joint expedition by the Museum and Mr. Louis C. G. Clarke, director of the Cambridge University Museum, England, conducted under the immediate supervision of Dr. S. K. Lothrop at Kechipauan, the ruins of another Zuñi pueblo in New Mexico, resulted in shedding additional light on the culture of its early occupants.

In 1922-23 a number of rockshelters along the White river in the heart of the Ozark region of northwestern Arkansas, were examined. Fortunately many of these caves were exceedingly dry,

and many articles, including basketry, textiles, and wooden objects, usually perishable, were found in a state of excellent preservation. Of these, the expedition secured a large collection, as well as a series of the more ordinary stone and bone specimens.

Later, researches of a similar nature, carried on in Lovelock cave, Nevada, with the cooperation of the University of California, were productive of a large and marvelously preserved collection of prehistoric artifacts. Following the work at Lovelock, attention was turned to Pueblo Grande de Nevada, where important studies were made among these interesting ruins.

In 1929 extensive excavations were accomplished under the direction of Mr. E. F. Coffin in rock-shelters at Bee Cave cañon, Brewster county, Texas. Besides artifacts of stone, wood, and bone, many interesting examples of yucca sandals, basketry, matting, net-work bags, remnants of soft fiber fabrics, and objects of unbaked clay were added to the collections. A report of the findings of this expedition has been published.

Through the generosity of Mr. Henry L. Ferguson, a trustee, a small expedition conducted additional excavations in 1932 at the Munsee cemetery near Montague, New Jersey, from which several new types of shell beads were obtained. The same year, due to the kindness of a trustee, Mr. Willard V. King, excavations were carried on in Monmouth county and near Morristown, New Jersey. Some

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pottery pipes and shell beads recovered are of unusual types.

In 1934, Mr. Blair S. Williams, also a trustee, made possible an archeological reconnaissance in Lancaster county, Pennsylvania.

The discovery of a village site and an early Algonquian burial ground on the shore of Lake Champlain near Shoreham, Vermont, led, with the cooperation of Mr. S. H. P. Pell, to the organization of an expedition which commenced operations in 1933. Under the direction of Mr. Godfrey J. Olsen, excavations through that and succeeding seasons have revealed a culture complex heretofore unreported. In connection with so-called red paint burials, series of unbaked clay tubes have been found accompanied by copper beads and blades, and the expected stone artifacts. All indications now point to this site as being of considerable antiquity.

CANADA AND THE NORTH

In 1917 and 1918 an expedition under the direction of Mr. Donald A. Cadzow made two trips to the Mackenzie river delta, and returned with complete sets of costumes and many copper and other utilitarian objects. During the years 1925-26 Mr. Cadzow also made important ethnological studies among the Assiniboin, Cree, Bungi, and Northern Piegan tribes of the far northwest. From these expeditions several ancient birchbark scrolls containing etched records of the rituals of the Midéwin

society, much costume material, and many implements of every day use came to augment the collections. From the Cree were obtained the famous Eternal Buffalo Bundle and the smoking tipi of Buffalo Bull. Later, Mr. Cadzow, accompanying the George P. Putnam Expedition to Baffin Land and the Hudson Bay districts, collected a most comprehensive and unique group of ethnological specimens, and engaged in some archeological reconnaissances among ancient Eskimo sites in those areas.

In eastern Quebec Dr. Frank G. Speck has carried on studies among the Montagnais and Mistassini, and, in Labrador, among the Naskapi. While on the Gaspé peninsula, Mr. Frederick Johnson visited and collected among the Micmac. Many important specimens were acquired for the Museum on these expeditions.

During the season of 1930, the posthumus James B. Ford Expedition to East Greenland under the leadership of Capt. Robert Bartlett, made important ethnological and archeological studies, particularly on Angmagsalik Island and about Scoresby Sound; and in 1932 under the same leadership, Mr. Junius Bird conducted archeological excavations at Cape York, and, the following year, on Melville Peninsula and Southampton and Igulik Islands.

The Director has made two recent ethnological investigations on Vancouver Island and the adjacent British Columbia mainland, and obtained many un-

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usual specimens of wood carving and house painting. Outstanding among these collections is a finely carved Salish grave-house.

MEXICO AND CENTRAL AMERICA

No aboriginal American culture was developed more highly than that of the tribes of Mexico and Central America; hence, it was most important that the earliest plans of the Founder and Director of the Museum included the exploitation of those vast and important fields. To this end several expeditions were made to Guatemala, Honduras, British Honduras, and Costa Rica by Professor Saville in 1913 and the years following. This opportunity was further increased with the establishment of the Board of Trustees of the Foundation in 1916. Mr. James B. Ford, one of the trustees, who died in 1928, pursued his policy of aiding scientific endeavor when he assumed pecuniary responsibility for much of the research conducted by the Museum in the countries to the south, as well as for many of the rare and important collections which it has been so fortunate to procure. These generous gifts, which have made the Museum preëminent in many ways, as far as Central America is concerned, have been augmented by the late Minor C. Keith, a trustee, through his liberal donation of the largest collection of Costa Rican earthenware extant, and by the late Harmon W. Hendricks, likewise a trustee and Vice President of the Museum, whose death closely

followed that of Mr. Ford in 1928. Mr. Hendricks made it possible for the Museum to acquire, among other treasures, a marvelous sculptured vase from Guatemala, a description of which has been published in the form of a *Leaflet* through Mr. Hendricks' further generosity. The importance of the Keith collection was manifest by a specialist who used it as the basis of an elaborate memoir on the ceramic art of Costa Rica and Nicaragua, published by the Museum.

Several important ethnological expeditions were subsequently sent into Mexico and Central America, notable among which were those under the direction of Mr. E. H. Davis and Mr. G. W. Avery respectively, both to the Seri country in Sonora and Lower California and to Tiburon Island in the Gulf of Lower California. Another was among the Bri-Bri of Costa Rica, and, more recently, three expeditions visited the tribes of Chiapas, Michoacan and Guerrero, Mexico, that in Chiapas among the Lacandon Indians, being made possible through the generosity of Mrs. James B. Clemens. These, and Dr. S. K. Lothrop's studies in Salvador and Guatemala, sponsored by the late Mrs. Thea Heye, have added large numbers of textiles, costumes, dance and ceremonial masks, and domestic implements to our collections from these districts.

At archeological sites in Central America excavations under Museum auspices have enriched the collections from El Salvador, Guatemala, Costa

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Rica, Panama, and the Mosquito Coast. Dr. Thomas Gann and Mr. Gregory Mason have made important investigations under our auspices in different sections of British Honduras.

Under the joint auspices of the Museum of the American Indian, Heye Foundation and the British Museum, Mr. F. A. Mitchell-Hedges made extensive archeological reconnaissances in Honduras and on the Bay Islands belonging to that country. Many of the specimens from these expeditions have added materially to the culture gaps that exist in the data available concerning these areas. This unusual collection augments that of Panamanian ethnology presented previously by Lady Richmond Brown and Mr. Mitchell-Hedges.

SOUTH AMERICA

When Dr. Heye became associated with the late Professor Saville in 1906, a series of researches to cover the archeology of the Andean and coastal regions of South America from southern Ecuador to Darien, thence to the West Indies, were planned. In the fruition of these plans, Dr. Heye was fortunate in having the active interest of his mother, the late Marie Antoinette Heye, through whose cooperation Professor Saville's studies were made possible. In all, nine field seasons were spent in the areas mentioned. In 1907 Professor Saville had the assistance of the late George H. Pepper, who assumed immediate charge of the excavations inland

from Manta in the Province of Manabi, Ecuador, and in 1910, the aid of Dr. Manuel Gamio, later the Director of Anthropology and Inspector of Monuments of Mexico.

The result of this archeological work has been of great importance, both from the point of view of the field studies and from the standpoint of collections. One of the immediate results of these studies was the report on the Antiquities of Manabi, Ecuador, issued in two quarto volumes in 1907 and 1910. The artifacts from Ecuador and Colombia consist chiefly of earthenware vessels, some of them large burial urns; stone objects, including many massive carved seats; and ornaments of gold and platinum.

In 1908 and 1909 Dr. S. A. Barrett, now Director of the Milwaukee Public Museum, carried to completion an ethnologic study of the almost unknown Cayapa Indians of northwestern Ecuador, the results of which have been embodied in a monograph published by this Foundation.

Important additions to the ethnological collections from the Araucanian tribe of Chile, and from the Pano and Changa peoples of Bolivia and Peru were made through the work of Mr. A. Hyatt Verrill during 1924 and 1925; and in the latter year Dr. Lothrop made extensive archeological excavations in the Paraná delta, Argentina. Huge funeral urns and other interesting material from this then little known archeological region were added to our collections by the expedition. Dr. Lothrop's subse-

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quent studies among the tribes of Patagonia and Tierra del Fuego brought to the Museum not alone great numbers of unique specimens, but invaluable data which has been published in the *Contributions* series; and his still later ethnological expedition among the Mapuche Indians of Chile enriched the collections from this area. All of Dr. Lothrop's trips were financed by the late Mrs. Thea Heye.

Also through Mrs. Heye's generosity an expedition under the leadership of Dr. Herbert Spencer Dickey to the Orinoco river in Colombia and Venezuela, was made possible. Archeological and ethnological specimens of great importance came to the Museum through the work of this party. In following years Dr. Dickey made other successful ethnological trips among the tribes of the upper Orinoco and the Amazon drainages. The expedition undertaken by Mr. Gregory Mason to the Goajira peninsula and contiguous coastal areas of Colombia in 1931 resulted in an interesting collection of archeology and ethnology being obtained through his efforts.

WEST INDIES

In 1907 soon after the South American research was initiated, an archeological survey of the West Indies was commenced, the late Rev. Thomas Huckerby undertaking that pertaining to St. Vincent, subsequently extending the reconnaissance to Tobago, Trinidad, Grenada, Carriacou, Cannouan, and also to many of the smaller islands

of the Lesser Antilles, as well as to the Windward Islands. The collections illustrating the cultures of the early West Indians thus obtained are numerous and most comprehensive.

The purchase from Lady Blake, of the incomparable collection made by her husband, the former Governor of Jamaica, gives the Museum the most valuable specimens of archeology from that island extant.

The work begun by Mr. Huckerby was extended in 1912 by the late Mr. Theodoor de Booy. Many journeys were made to the islands by Mr. de Booy in the interest of the Museum, first to the Bahamas and Caicos, later to Jamaica, Santo Domingo, eastern Cuba, Margarita, Trinidad, the Dutch Indies, and to the Virgin Islands immediately after their transfer to the United States. The work of the Museum in the West Indies thus early resulted in an accumulation of artifacts that exceed in number and importance all others from these islands throughout the world.

Visits to the West Indies were also made in the interest of the Museum and the Smithsonian Institution by Dr. Jesse Walter Fewkes, of the Bureau of American Ethnology at Washington, who conducted archeological explorations in St. Vincent and Trinidad. Subsequently, Mr. Harrington, of the Museum staff, following Mr. de Booy's reconnaissance, proceeded to eastern Cuba, where archeological studies of prime importance resulted in the determination of

the cultural sequence of the early aborigines and in the gathering of many artifacts of the highest scientific value. These findings have also been published.

In 1931 the late Capt. Robert R. Bennett made several valuable archeological contributions to our collections through his work in shell heaps at the western end of Cuba, and two years later Mr. Godfrey J. Olsen commenced his excavations in Haiti in the vicinity of Aux Cayes and on the Isle la Vache which have enriched our collections from those areas. Notable among the additions are a stone bowl with incised design and an unusual ceremonial axe. A comprehensive collection of over two thousand pieces was obtained by an archeological expedition to St. Croix, supported by Mr. Willard V. King, a trustee, and under the direction of Mr. Lewis J. Korn.

VALUED CONTRIBUTIONS

In addition to those specimens that have been accumulated through actual expeditions to various fields, the generosity of friends whose only direct relations with the Museum are their interest in its aims and objects, has brought thousands of objects to augment our collections. Among these benefactors are the late Mrs. Thea Heye, wife of the Director, whose name is not alone borne upon thousands of priceless specimens, including those forming a collection of Mocoa ethnological material from Venezuela and an outstanding collection of

ancient Mexican objects, but who has met the expense of expeditions to Santa Catalina and San Miguel Islands, and to Santa Barbara, California, as well as to various other fields, which have been productive of collections unequaled in their comprehensiveness and in their value to the study of the culture of the former aboriginal peoples. Among the many valued gifts from Mrs. Heye, special mention should be made of a collection of California basketry, of the entire shrunken body of a man from the Jivaro Indians of Ecuador, the result of the same process by which the well-known shrunken heads are produced by this tribe, and of archeological specimens from Bolivia and Peru.

Especially noteworthy among the other benefactors of the Museum are: the late Miss Edith Hendricks, who presented collections of ethnological specimens from the upper Amazon, and of antique material from the Iowa tribe, as well as other objects; Mrs. Charles R. Carr, of Warren Rhode Island, an archeological collection, the result of her husband's excavations at the historic Indian site at Burr's Hill; the late Mr. W. de Forest Haynes, who contributed rare archeological objects from South Carolina and from Tennessee; Mrs. Samuel K. Reber and Major Sherman Miles, collections from the Plains tribes made by their father, the late General Nelson A. Miles; the late W. J. Mackay, an Iroquois archeological collection from northern New York and Ontario; Rev. William R. Blackie,

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his collection representing the archeology of Westchester County, New York; Mrs. Willard Kent and Mr. George Stevens, collections of over 10,000 archeological specimens from Rhode Island; Mr. Homer E. Sargent and the late Mrs. Russell Sage, notable collections of Indian basketry; Mrs. Edward S. Harkness, a collection of silver jewelry from the Navaho; and Mr. Reginald Pelham Bolton, who not only has given various archeological specimens from New York City and the vicinity, but who has contributed his valued services without stint in the Museum's field work.

Further to be especially mentioned are: The late Rodman Wanamaker, twelve sculptured stones from Guatemala, including a large and unique slab; Mrs. Alexander Richardson and Mrs. Alexander W. Maish, the incomparable Chiricahua Apache collection of their father, the later Major John G. Bourke; Dr. George Bird Grinnell, a valuable collection of ethnological objects from the Cheyenne and Blackfoot tribes; Mr. Gordon MacCreagh, numerous artifacts illustrating the ethnology of the Tukano Indians of the Brazil-Colombia border; the late Gari Melchers, an old and valuable collection of ethnology from the United States and Canada; Mrs. Henry S. du Pont, the extensive ethnological collection of her father, the late Mr. Edward Howe Wales; Mr. Jay Noble Emley, quillwork from the Dakota and basketry of California and the Pacific Northwest; Commander George Dyott, ethnological pieces from

Ecuador; the late Frederick S. Dellenbaugh, three of his own canvases of southwestern scenes, and important Hopi material; Mrs. James B. Clemens, an unusual collection of archeology from the Temple mound, Oklahoma, and the estate of the late Mary E. Harriman, Alaskan ethnology collected by the Harriman Alaska Expedition in 1899.

GIFTS BY TRUSTEES

In this brief summary only a few of the gifts made by trustees of the Museum, important as they all are, can be mentioned. As proof of the interest always manifest, Mr. Hendricks presented various large collections, including numerous polychrome vessels from the celebrated Casas Grandes of Chihuahua, two William Penn wampum treaty belts, a large number of gold objects from Colombia, a collection of archeological pieces from Tennessee, Virginia, Kentucky, and Pennsylvania, a collection of archeological and ethnological specimens from the Chokoi tribe of Panama, ethnological objects from the Plains Indians gathered at Fort Laramie, Wyoming, about 1850, a collection of native woven textiles from the Southwest and northern Mexico, and other collections representing the cultures of the Karok, Tolowa, and Yurok Indians of northern California.

Of no less importance and scientific value were the gifts by Mr. Ford, preëminent among which is a collection of seventeen mosaic objects consisting of wooden shields, masks, and an ear ornament inlaid

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with turquois and other stones, from Mexico—described and illustrated in a special *Contribution* published by the Museum. Until these were obtained only twenty-four major examples of mosaic work had come to light and had been placed on record by printed description and illustration. Of these, twenty-three are in Europe. The other specimen, from a cave in Honduras, is in the possession of the Museum, also as a gift of Mr. Ford. Other gifts of this benefactor include extensive archeological collections from the California islands, the Lady Blake collection from the West Indies, many ivory carvings of the Eskimo, ethnological objects illustrating the life of the Cree, and of the Eskimo of Hudson Bay, Bering Strait, and the Yukon territory, collections of antiquities from Mexico, Honduras, Guatemala, Brazil, Paraguay, and British Honduras—the latter including a fine series of painted Maya vases—and Inca textiles of the early colonial period, marvels of aboriginal American art.

Another trustee, the late Mr. F. Kingsbury Curtis, has given the Museum the important G. T. Arms collection of archeological and ethnological material from Chile; while Dr. Archer M. Huntington has presented, among many other things, an album of original water-color drawings of Indian subjects by George Catlin.

Also important are a group of artifacts, the gift of Mr. William Shirley Fulton from his own excavations at an ancient village site near Dragoon, Arizona, and

a representative collection of specimens excavated on Fishers Island, New York, by Mr. Henry L. Ferguson and Mr. Blair S. Williams. Reports concerning the work in these areas have been published. These trustees have also presented many valuable specimens from other localities.

IMPORTANT ACQUISITIONS

In 1930 the acquisition of the famous Clarence B. Moore collection of archeology was made possible. Mr. Moore spent upwards of thirty years in excavating mounds in Florida, Georgia, South Carolina, Alabama, Tennessee, Kentucky, Missouri, Arkansas, Louisiana, and Mississippi, and this collection of stone, shell, bone, and metal artifacts and ceramics is most representative of those areas. Outstanding among the many thousands of specimens of aboriginal workmanship is a stone bird-bowl from Moundville, Alabama. This is carved from diorite, and represents, probably, the highest expression of native art in stone yet to have been found in the United States.

Of equal importance, if not numbering as many specimens, is a collection of archeological material from the Temple mound, Le Flore county, Oklahoma, recently acquired. This includes hafted copper axes, most unusual engraved shells, fabric fragments, and carved objects of stone and wood, including several unique masks and some interesting double-bowl and effigy pipe forms.

PHYSICAL ANTHROPOLOGY

A division of physical anthropology, originally established under the patronage of the late Dr. James B. Clemens, and under the immediate supervision of Dr. Bruno Oetteking, cares for the large amount of skeletal material that has come to the Museum from field expeditions, from acquisition, and by gift. Several monographs have been published from Dr. Oetteking's studies of these collections.

PUBLICATION

Following the issue of the two quarto volumes on the Antiquities of Manabi, Ecuador, the publications were confined to a series of *Contributions from the Museum* consisting largely of articles by members of the staff or reprinted for wider distribution from scientific journals. In 1919, following his liberal patronage, especially in the direction of the physical needs of the Museum, Dr. Huntington contributed the means for the publication of the *Indian Notes and Monographs* series, which affords an unusual opportunity for disseminating the results of studies by members of the staff and by the Museum's collaborators. It is therefore due to Dr. Huntington's interest that the Museum has been enabled to issue (to July 1935) 93 works in the series mentioned, ranging in size from a few to many hundred pages, most of them profusely illustrated, in addition

to seven completed volumes of *Indian Notes* comprising nearly three hundred articles with many illustrations. Through this period additional issues in the *Contributions* series have appeared to the total of 36 different titles, and a *Leaflet* series, comprising five numbers to date, was instituted.

A list of the publications of the Museum of the American Indian, Heye Foundation will be sent upon application.



INDIAN NOTES AND MONOGRAPHS

No.

51



A SERIES OF PUBLICA-
TIONS RELATING TO THE
AMERICAN ABORIGINES

THE TSÁTCHELA INDIANS OF WESTERN ECUADOR

BY

V. WOLFGANG VON HAGEN

NEW YORK
MUSEUM OF THE AMERICAN INDIAN
HEYE FOUNDATION

1939

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REFERENCE STACKS

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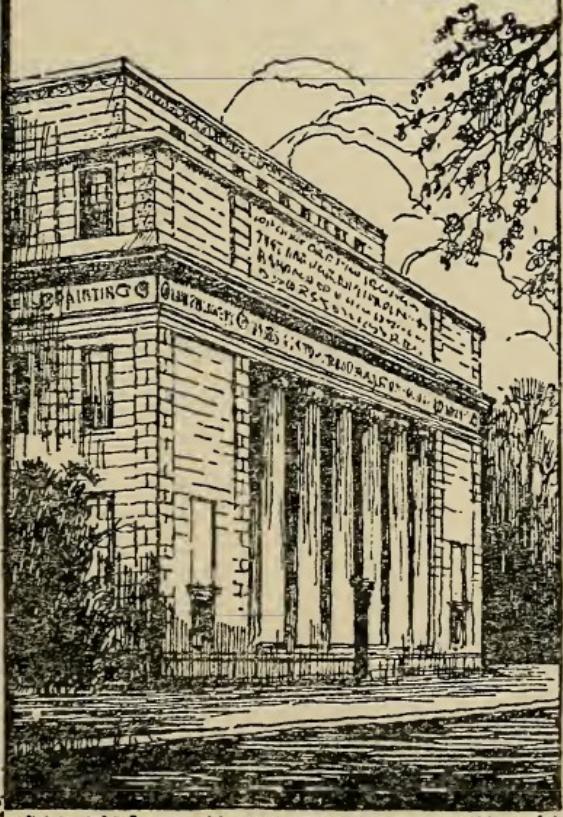
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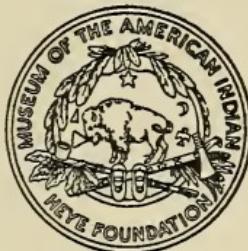


YOUNG TSÁTCHELA MAN

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THE TSÁTCHELA INDIANS OF WESTERN ECUADOR

V. WOLFGANG VON HAGEN

INTRODUCTION

THE Tsátcchela, or Colorado Indians, as they are better known, inhabit the forests on the lower slopes of the western Andes at about 2,000 feet above sea level within the confines of the Province of Pichincha and the Province of Esmeraldas. The region extends from latitude 0.2° S. to latitude 1°.5' S. In very modern times the tribe seems to have divided itself into two groups: those living about the village of Santo Domingo, and the larger group residing in and about the small settlement of San Miguel, 15 kilometers southwest of Santo Domingo. The name "Colorados" was given to them by the early Spanish explorers because of their singular custom of coloring the hair and body a brilliant red from the dyes obtained from the pods of the achiote bush. They refer to themselves as Tsátcchela, which merely means "men" or "the men."

Brinton¹ says that Cieza de León referred to them as Manivis and Velasco¹⁵ states that they were in the region of the Barbacoas, Telembis, and Isuandes who had formed a confederation of tribes and rulers.

The now extinct Cuaiqueres of the Pacific coast of Ecuador spoke a language similar to the Tsátcchela.

In the time of the Ecuadorean cartographer, Pedro Maldonado (1746), two distinct subtribes were recognized and are indicated on his map⁵: the Colorados of Santo Domingo and the Colorados of Angamarca. The former were located in that region wherein they are found today, the latter at a higher altitude (about 4,500 feet) on the slopes of a *nudo* that leads to the extinct volcano Chimborazo, and from the lower to the upper reaches of the Guayas river system near the river city of Babahoyo.

The present monograph is the result of nine weeks spent among the Colorados in the months of July, August, and September, 1936, and is treated from the naturalist's viewpoint rather than that of an ethnologist, to which latter distinction the author lays no claim. The visit climaxed two and a half years of field work throughout Ecuador from June 1934 to October 1936, during which time the Jivaro or Shuâra, Canelo, Otavalo, Zaraguro and Cayapa tribes were visited. While the prime interest of the expedition was in the fields of entomology and ethnobotany, extensive ethnological collections were also made. The greater part of these are now in the Museum of the American Indian, Heye Foundation, in New York City, and in the Anthropological Museum of Boston College. If untenable generalities are occasionally met in the text, they are not the result of a haphazard, unethnological treatment, but

rather of the writer's attempt to throw some light on the origin and customs of the Tsátcchela.

HYDROGRAPHY OF THE REGION

The whole of the region of the Colorado Indians is well drained by small streams and large rivers that divide within the habitat of these Indians, some streams flowing southwest to form the complex Guayas watershed, others flowing northwest to complete that of the Esmeraldas. The largest river within the region is the Rio Toachi (*Wapi*: large) which arises in the Cordilleras from the snows of the peak known as Illiniza. This river, flowing northwest, joins the Rio Blanco, a swiftly moving stream, and the latter, joined by the Rio Guallabamba that rises in the Province of Imbabura at an elevation of 8,500 feet, forms the Rio Esmeraldas and flows into the Pacific Ocean. The streams forming the Guayas River arise also in the slopes of the region of the Colorados, but at the present time the Indians live only on that part of the river known as Rio Palenque. This region is not so well watered as the Esmeraldas region to the northward, the streams are less swift in movement, and the mosquito fauna ubiquitous. It is also the least populated area of the Colorado tribe. These rivers are not used by the Colorados for communication, as they are filled with rapids, and, in addition, the Indians do not seem to be a river folk, their art of canoe-making at best being most rudimentary.

CLIMATE

Temperature, excessive humidity, and richness of the soil combine to produce the prodigality of vegetation. Yet, despite the proximity of the Equator, it is seldom hot. The average temperature during the winter is about 73° F., descending as low as 64° during the night and seldom exceeding 84° through the day. This cool climate seems to be due to the almost daily precipitation of light rain, caused as the mists settle against the lower spurs of the Andes, a heavy one, lasting until 11 o'clock, usually opening the day. November ushers in the rainy season, which continues until July. Rainfall has never been measured systematically, but from our observations, the estimated annual fall exceeds 185 inches.

The dry season generally begins about the first week of August and continues to November, although there are periodic fluxes in this region and droughts are not unknown. Although our residence extended only to the first week of September, we already noticed the rapid drying of the small streams.

FLORA

The flora of the region is distinguished by the ubiquity of the royal palm (*Roystonea regia*) whose beautiful, well-formed branches give the whole region a parklike appearance. It, however, is but one of a long series of palms of the genera *Bactris*, *Guilielma*, and *Iriartea* which furnish so much material for the Indians' homes and industry. Balsa (*Ochroma* sp.),

rubber (*Hevea* sp.), wild papaya (*Carica* sp.) and cascarilla roja (*Cinchona* sp.) are found everywhere, the eye being able to segregate readily these from the massed green of the jungle. Lianas festoon the trees, orchids are especially conspicuous during the rainy season, and canes, bamboos, rattans, and agave are found in their usual ecological regions. The *Heliconia* species, known to the Colorados as *bijao*, furnish them with a fine thatching for temporary structures. No area in Ecuador is more fully endowed with the beneficence of nature than this lovely region where there is a junction of the subtropical with the humid tropical flora. It is a region of scant population, still untouched by commercial exploitation.

FAUNA

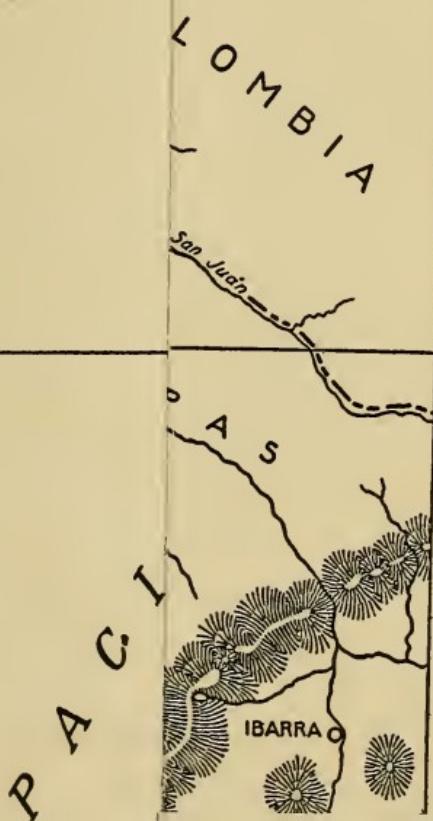
The fauna is typical of the neotropics: tapir, deer, jaguar, and monkeys and rodents in a number of varieties are all rather abundant. The peccary, once a great source of flesh food, has gradually disappeared, due to a sort of murrain, introduced with horses by the white settler. The area is noted for the abundance and brilliance of its avifauna and is a classic region for the ornithologist. Toucans, cock o' the rocks, and umbrella birds abound, and are typical of the quasi-amazonic species. Fish, large and small, river turtles, giant snails, and oysters are plentiful in the streams. Outside of the village areas, the fauna is unusually prolific for South America.

INHABITANTS OF THE REGION

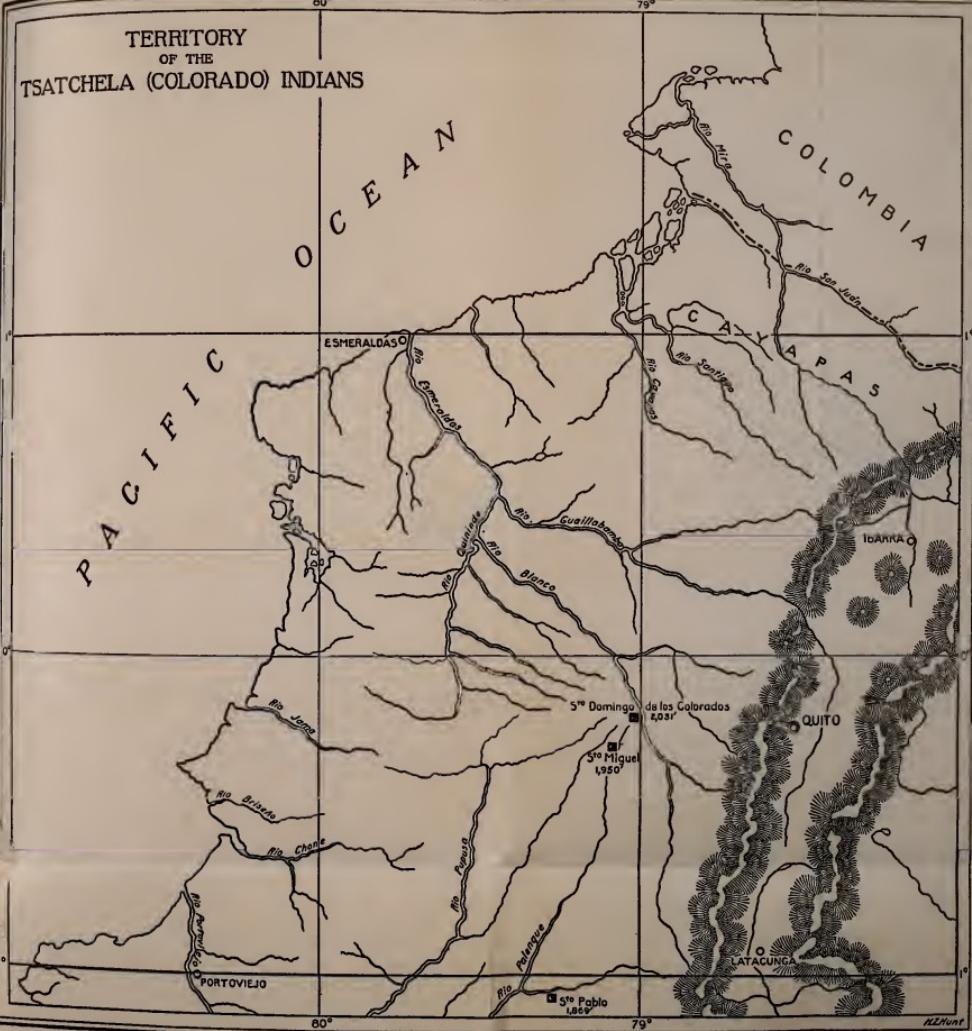
The Province of Esmeraldas, and the valleys of the Province of Pichincha, both parts of which are the tribal seats of the Colorados, constitute the least populated area of the whole of Ecuador. The Cayapa Indians in the more northern and central part of Esmeraldas and the Colorados in lower Pichincha and contiguous areas of Leon and Los Ríos are the only surviving indigenes; and these, with a relatively small white population, negroes, and sambos—the latter a term applied to a mixed breed of negro with coastal Indian—form the bulk of the inhabitants in the region under consideration. The whole population is certainly not greater than 30,000 within an area of about 3,000 square miles.

On the coast and throughout the lower portions of the navigable rivers are to be found only negroes, descendants of blacks who escaped from a wrecked slave ship in the seventeenth century. In addition to the river settlements, the negro and various castes are found in the coastal cities of Esmeraldas, Atacames, Rio Verde, etc. With what Indian groups the negro intermarried, the author does not know, but the Cayapas and the Colorados have resisted such infiltration. The people of this coast region and the once populated section of Atacames, the civilizations investigated by Saville,⁹ appear in such bewildering succession that it is found difficult to cut through the ethnological maze. Suffice it that this healthy region with its exuberant vegetation

TER
TSATCHELA (C)



TERRITORY
OF THE
TSATCHELA (COLORADO) INDIANS



REGION OF THE COLORADO INDIANS

The squares indicate the three areas of the tribe, are equivalent to 10 square kilometers, and include all the scattered dwellings within the area.

and navigable rivers must once have been very populous.

According to Karsten,³ the Colorado, Cayapa, and Cuna Indians (the latter of Colombia) retain much of the ancient Chibcha culture, which originally was spread through nearly all of what now is Colombia, from Bogota northward. They were dispersed by tribes coming up the Magdalena to which we now accord the general name Barbacoas. As many of the customs of the ancient Chibchas, as related by Simon,¹¹ seem to be similar to those found among the present-day Colorados, it is of interest to mention some of them.

The Chibchas never evolved a more complex dwelling than a structure of palm- or straw-thatched, bamboo-posted compounds. Their ears were pierced as was the nose (perhaps in the septum), and the Guechas, a ruling caste, were permitted to cut their hair short—a feature of both the Colorados and Cayapas. The ear and nose ornaments had designs that were crescent shaped, quite similar, it appears, to those now worn by the Colorados; the altitude in which the Chibcha lived caused them to use a toga-like mantle made of cotton fibers; the men assisted with the agriculture; bodies and hair were painted with achiote; and upon the death of a head tribesman, cloaks dyed red with the dye of the achiote bush were donned—all customs found among the Colorados. The languages of the Colorados, Cunas, and Cayapas show the same basic etymological

origin, yet even the slight geographic separation of the Cayapas from the Colorados has brought variants in pronunciation so profound that when conversing together, they have been heard to speak in gerundive Spanish, as they could understand each other in no other way.

Little is known of the Tsátcchela, either ethnologically or historically. Sebastian de Benalcazar, one of the conquerors of Quito, is thought to have descended from the Sierras to their region as early as 1541. Who bestowed the sobriquet "Colorados" and when, is not known; but to a Spaniard seeing the achiote covered Indians for the first time, it would be an obvious name. The indigenous Indians of Quito, and, later, the invading Quechuas referred to them as *Yungas*, that being the general term of the Quechua for inhabitants of the hot valleys. It seems safe to postulate some sort of communication between these people and the higher culture of the indigenes about Quito. No doubt there were some contacts, and trade of a rudimentary type, but to what extent these were developed neither custom, myth nor history informs us.

When Pizarro first came into the Pacific he visited the South American mainland in the part known now as Atacames, called then Chincha-suyu, the most northern of the coastal territories of the Inca. Atacames is a short distance south of the mouth of Rio Esmeraldas, then, apparently, an area of vast population. According to Velasco¹⁵ there were in

addition to the coastal Indians under domination of the Inca a number of tribes in the interior joined together in some type of confederation. To what extent the Colorados were spread throughout these provinces is not recorded, but if they spoke a language, as is claimed, similar to the Cuaiqueres, now extinct, then their territory extended throughout the forests fairly far to the Pacific.

Withal, little information about the area is exact. Commercially the province was long neglected, and the first thought given to it was when pressure by English pirates on the port of Guayaquil made necessary an attempt to find another route—to supplement Guayaquil—to the Sierra. In 1621, Pablo Durango Delgadillo who, some years earlier, had been promised the governorship of Esmeraldas by the Marquis de Montes-Claros, then Viceroy of Peru, as a reward for conducting the expedition, endeavored to find such a route by way of one of the rivers. The Rio St. Yago (Santiago), now called Rio Cayapas, was followed to its navigable source in an attempt to open a road to San Miguel de Ibarra, located 60 miles north of Quito, in the inter-andean valley, at 7,300 feet. The expedition ended in failure. In succession, others were sent during the remainder of that century and into the beginning of the eighteenth. Failure attended all efforts until 1735, when one Pedro Maldonado, a "creole du Perou," was made governor of the Province of Esmeraldas. He followed the Esmeraldas River into

the Rio Blanco and when he could no longer use the stream, cut a road from a part he named "Mindo" up to the Cordilleras. This route is used today. But more important still, during his labors and explorations Maldonado concurrently made extensive topographical observations. Afterwards in company with La Condamine he descended the Amazon with the members of the French Mission. His map⁵ was for many years the source of all maps of Ecuador and, principally because of the thoroughness of his observations and the accuracy that is to be noted in these charts, much credence is given to his divisions of the tribes of the Colorados.

As is apparent, the two tribes known as Colorados de Santo Domingo and Colorados de Angamarca were thoroughly differentiated, for Hervas² says: "La dicha nacion Colorada, se llama de *Angamarca* para distinguirla de un ramo de la misma nacion. . . ." The religious superstitions support the fact of their distribution in the higher parts of the Sierras where they are placed in Maldonado's map: for Karsten³ remarks (p. 138): "That the Colorados have once lived much nearer to the Andes than in our days may be inferred from the great rôle volcanoes such as Cotopaxi and Chimborazo, which are not visible from their present territories, play in their religion."

About 1694 the Jesuits entered the region to begin their spiritual conquest of the Colorados. The natives were undoubtedly as peaceful then as now;

for it is evident from the inordinate enthusiasm they have for the padres who visit them periodically today that there is little tribal resentment toward the bearers of Christianity. However, Padre Hervas,² from an unindicated source, states: "La nacion *Pomallacta* se rebeló en el presente siglo [18th], como tambien la *Yunga* ó *Yunca* . . . la qual despues que los jesuitas en el año 1706 cediéron á los eclesiásticos seglares las missions que en ella habian fundado, se rebeló, y se unió con parte de la nacion llamada *Colorada*, cuya lengua tiene afinidad con la *yunga* ó *yunca*. En esta ocasion se perdiéron á lo ménos trece mil personas christianas" (p. 274-5). The cause of this rebellion is not stated, but the implication is that it accompanied the turning over to secular Dominican padres from Quito of the missions that the Jesuits had established on the Ríos Toachi and Quininde.

This historical resume is given to aid in determining the agents active in the depopulation of the Tsáatchela. That they enjoyed a greater population and a wider distribution in earlier times is evident from the fact that rivers and other topographic features bear Tsáatchela names. In such contemplation, various recorded eruptions of the volcano Pichincha, which must have ravaged the nearby valleys, as its only crater opens to the west, must be considered. Salazar de Villasante⁸ (p. 26) reports one of three or four day's duration in 1560, and Stevenson¹³ (II, p. 334) notes severe explosions in

1660 and 1690, during the latter of which ashes continued to fall in Quito for twelve days. It seems a logical surmise that these holocausts, combined with the rebellion of which Padre Hervas speaks and the diseases that were brought by white men, have been important factors in reducing the tribe to a pitiful remnant in two centuries. One other consideration, important to any such conjecture, is that monogamy is practiced among the Colorados. Whether a typical tribal custom or the result of Christianization, nevertheless it, too, has some bearing on the decline of the race.

One notable exception in the hiatus occurring in the literature on the Colorados from the time of their discovery to the end of the nineteenth century, is found in the travels of the Englishman, W. B. Stevenson.¹³ He resided in South America from 1800 to 1825 and was private secretary to the President Captain General of Quito, later becoming Colonel Governor of Esmeraldas. It was in the administration of these duties that Stevenson explored the Province of Esmeraldas and visited the Colorados. In 1808 Count Ruis de Castilla ordered a re-examination of the road that Maldonado had made from the upper reaches of the Rio Esmeraldas to the Sierras, and Stevenson was commissioned to make the survey. His remarks on the inhabitants of Esmeraldas, as well as on the Cayapas and Malaguas, are interesting and tend to throw considerable light on the controversy of the peopling of Esmeraldas and the Ecuadorean Sierras.

In the beginning of the nineteenth century, according to Stevenson, the people on the coast of Esmeraldas and along the immediate rivers were sambos; their language differed from Quechua, and, to Stevenson, it seemed to lack greatly in expressive words. The men were dressed in pantaloons, white shirt, and straw hat, while the women wrapped a blue cotton mantle about their waists, and tied a handkerchief at two corners about their necks, allowing it to drop down the back. This is interesting, for it is precisely the dress of the present day Colorado women. The children of these negro-Indian hybrids were lashed to boards and carried papoose-fashion. In Stevenson's time, the Esmeraldeños used a blowgun five to eight feet long, which propelled a cotton-tipped dart, called *pua*, seven to eight inches long. The poison used on the dart was brought from *Maynas*, in western upper Amazonas. This poison was also used as a purgative, and was taken as a pill, wrapped in the pulp of a plantain. As among the present day Jivaros, the Esmeraldeños regarded sugar and salt as the only antidotes for the poison.

The musical instruments of the coastal people were African. The balsa wood drum with a head of deer- or wild pig-skin, and the chambo, a hollow bamboo tube—four inches in circumference and thirty long—into the ends of which hard pegs of chonta wood are inserted after tagua nuts have been dropped into the hollow cylinder, are typical,

and have spread, together with the marimba, to the Colorados.

In the traditions of both the Colorado and Cayapa Indians, is noted a tribe with which they carried on wars of extermination. This group lived to the north of the Colorados and were called *Indios Bravos* by the white inhabitants, and *Watsu* by the Cayapas. Stevenson heard that this tribe occupied a little-traveled region to the north of the Rio Cayapas between it and Rio Mira, some 75 miles from the coast. These Indians were called Malaguas by Maldonado (1750), and on his detailed map there appears this information: "Por aqui vive la Nacion de los Malaguas que se rebelo antiguamente."

Stevenson employed two Cayapa Indians to paddle him to the environs of the Malaguas, which the Indians did with much trepidation. Contact was made with the chieftain of the tribe, who came by foot to the embankment of the river where the Indians had erected a shelter. The language of the Malaguas, according to Stevenson, bore "a strong resemblance to Quichua" and as Stevenson knew that language well he was able to converse with the cacique, who, being informed that Stevenson came only from curiosity and was not demanding tribute, then revealed his name as Cushicagua, and stated that living within two leagues distance of his house were about "two hundred *ishcay huarango* *

* This is somewhat confusing. *Ishcay huarango* is the Quechua term for 2000.

families." According to Cushicagua, the Malabas (Malaguas) and other tribes that inhabit the jungles of Esmeraldas were descendants of the Puncays of Quito, and, although the Chonchocando of Lican, the supreme chief of the territory now called Quito, became the vassal of Tupac Yupanqui, the Malabas were never conquered by the Incas. Since the conquest of the country by the Spaniards, they had not, like the Cayapas, solicited Christian priests, nor had they become subject to the whites.

The men of the Malabas dressed in wide purple drawers that came to mid-thigh. The women wore a large piece of cotton cloth girdled around the waist, two corners of the upper half going across the breasts, under the arms, and about the shoulders to be tied in front, thus completely covering the whole body. The women pierced their ears and fastened bunches of beautiful feathers to them; the men wore the feathers of a parrot, which they called *wincha*, about their heads; both men and women painted their bodies with achiote.

The statement of Cushicagua as to the tribal origin is interesting as to the light it throws on the controversy of the origin of the pre-Inca Quitus. According to the legend first brought into the literature by the Jesuit, Abbé Velasco,¹⁵ who lived for many years in Quito, the Quitus, a tribe of a low grade of culture, occupied the environs of what is now that city. They were conquered in the tenth century by the Caras, an emigrant people who came

from the north on rafts, disembarked at the present Bahia de Caráques in the modern Province of Manabi, and, after some centuries' residence in these coastal parts, proceeded up the Esmeraldas river and laid siege to the Quitus whom they eventually subdued. Under the kingdom known as the Caras-Scyris, this tribe continued until they in turn were conquered by the Incas in 1487. Means⁶ (pp. 146-171), who reviews the whole story and gives a resume of the criticisms of present day Ecuadorean historians regarding it, apparently sees no reason why it should not be accepted as true. Others regard the legend as highly mythical, and insist that there existed in pre-Columbian Ecuador a rich and varied mosaic of indigenous cultures, characterized by individual traits, speaking a tongue neither Quechua nor Aymara, but belonging to the language types classified by Rivet as Paniquita and Barbacoa.

The folk-lore of both the present day Cayapas and Colorados records their ascent into the mountains of Ecuador, and though the Indians themselves are not as explicit as was the cacique of the Malabas to whom Stevenson spoke in 1809, they recognize the mountain regions of and about Quito as their ancestral home. As the language of these tribes is of the same roots as the Chibcha, it would seem that more confidence is to be placed in the theory that pre-historic Quito was peopled by Chibcha stock than in the somewhat fantastic tale of invasion by the Caras in the tenth century.

As Stevenson's material on the Colorados seems to be so accurate and is historically interesting, a considerable portion of it is quoted:

The settlement or reduction of the Colorados is merely the house of the cura, and a small church; the Indians live dispersed in different parts of the surrounding woods, generally on the banks of the small rivers, and only appear on the Sundays and holidays at mass. These Indians, like the Malabas and the Cayapos, trace their origin to the times of the chonchocandos of Lican; they also state, that they were never subject to the Incas and only to the Spaniards within the last thirty years (1810). They are not tributary but each Indian from the age of eighteen pays one dollar annually to the parish priest, who has no other stipend. Including the two annexed *semi-paroquias* of San Miguel and Cocaniguas, the curacy contains about three thousand Indians, but the curate seldom receives more than eight hundred dollars a year, or rather the amount of eight hundred. The Indians always pay their quota in raw wax, at half a dollar a pound, which is sent to Quito for sale; but a considerable profit is derived from it, because it is worth a dollar a pound when purified.

The Indians of Santo Domingo are called red *colorados* from the quantity of achiote with which their bodies are besmeared; in their persons they resemble the Malabas; the dress of the men is composed of a pair of very short white drawers, and a white poncho about three-quarters of a yard square; their hair is cut round and hangs like a mop, but it is confined to the head with a fillet of silver lace,* or a thin slip of sheet silver; round their necks, the

* The present day Colorado has no such fillet of silver, but a sort of calotte called *mishoshuli* made of wound

small part of their arms, and below their knees, they wear other slips of silver, about an inch broad, and to the lower edge a great number of small silver drops hang loose, forming altogether a very pleasing appearance. The women wear a piece of flannel or cotton cloth, wrapped round the waist, and reaching below the knees, with a profusion of beads round their necks, wrists, and ankles: white and pale blue glass beads are held in great estimation among them; they plait their hair in long tresses, and allow them to hang loose.¹³ (II, pp. 431-33.)

PHYSIQUE AND PERSONAL CHARACTERISTICS

The Colorados are of middle height, averaging between 160 and 165 cm., and are well and solidly built. The torso of the male tends to be slim and less thickset than that of the female, and the legs are disproportionately hyper-developed (pl. I). The feet are broad with the toes widely spread, indicating that travel is largely by foot and that canoe transportation has not been at all developed.

As the Colorados paint themselves constantly with achiote, it has been difficult to ascertain their true skin color. They seem, however, to tend toward a light copper, and are lighter than the Indians of upper Amazonia. The author believes that the Colorados are brachycephalic, but as neither cephalic nor morphological indices have been charted from any great number of the group, no more than a guess

cotton fibers. Stevenson is generally accurate and, since the Colorados use much silver, it is not improbable that their hair was once held by such a silver fillet.

is made on this question. Karsten³ remarks, however (p. 138), "Anthropologically they present a pretty pure type. No crossing of breeds can be traced, although the Colorados have long been in contact both with whites and negroes."

The nose is well developed, and although here again no index has been made, it tends toward the mesorrhinic. The nostril is seemingly normal. The ears are of proportionate size to the head.

The hair of the Indian in its natural state is black and coarse, but among the males it is almost always plastered with the waxy paste of the achiote. The coiffure is cropped in a form of "bowl trim" usually with scissors purchased in the village. The unoccupied Colorado will take an old pair of scissors from the red sash about his waist and keep cutting his hair until it is as closely sheared at the back of the neck as if done with a fine hair clipper. Sometimes they cut each other's hair.

When thoroughly permeated with achiote, the hair is combed into bangs. Two styles are in vogue among the males. One is to allow the bangs to come down below the eyes; so low, in fact, that in order to see they must tilt the head backward. The other is to part the bangs so that the hair sticks out on either side of the center of the forehead, the sight not being obstructed.

The lustrous black hair of the women is left long and is parted in the center of the crown. The female does not dye the hair, but is content, on festive

occasions, to rub a bit of achiote paste on the crown of the head only.

Depilation is not practiced, at least not as conspicuously as are the other forms of the toilet. The men show little evidence of hair on their faces or bodies, except for a rather heavy development at the axillae. The Colorado makes no attempt to remove the facial hair that appears in advanced years. With age, he loses the distinctive features of the younger Indian, and, given the dress of western civilization, little difference would be noted between him and a Caucasian, for the skin of the aged depigmentizes noticeably. Zaracáy, the shaman mentioned by Karsten as being very old, and who was probably between 85 and 90 in 1936—although he claimed to be over 100—had depigmentized to such an extent that in the trousers and coat he affects he presents a slightly bent figure of an old man with no Indian characteristics evident in his cultured face.

Precluding a premature death from the various diseases that the white man has brought with his civilization, it is believed that the Colorados are very long lived. The excellent structure of the body belies in many instances the real age of the Indian. Nothing in carriage or manner of work ever gives indication of advancing years, the sagging of facial muscles and the growth of facial hair being the only signs of age.

No deformities were observed among the Colorados. Nose piercing, which is the custom of the

male only, is the sole form of deliberate body mutilation. There is no tatooing among them. The women bind their arms above the joint of the elbow (pl. IX), usually with a small strand of woven cotton stuff, and sometimes with glass beads strung in a loose pattern. Neither the legs nor the arms of the male are bound. The silver plates about the wrists of the male (Frontispiece) are purely ornamental, and are attached loosely. Teeth are blackened with a small seed which they call *ampo*. This is similar to, if not identical with, the *nushumbi* used by the Shuâras in the western Amazon, and is made from the berry of the plant *Manettia coccinea* (Aubl.) WILLD.

CLOTHING AND BODY DECORATION

The dress of the male consists of a short skirt (*umbâtsompa*) ending a few inches above the knee. It is woven by the women in nonvariable design, a repetition of alternating blue and red stripes on white. About the neck is worn a small ponchito (*tapé*) which is a sort of cotton mantle that slips over the head. Originally it is without color, but eventually it turns a light red from contact with the body dye. In travel, or for festive occasions, the male places on his head a sort of calotte (*mishoshuli*) of wound cotton fiber. This, too, is white, but eventually becomes red from contact with the achiote paste on the hair of the wearer. During inclement weather and in the cool early mornings and evenings,

the male drapes about him a toga-like covering which is referred to as *tuná*. This is a coarse sheeting purchased in the village, and it too is dyed red through contact with the body. Formerly this garment was also woven by the women.

The dress of the male includes a red sash, purchased in the village, which is tied about the waist over the skirt. On the wrists are fastened bracelets of iron washed with silver (*kalāteshlí*). These are procured through trade from a mountain source which the author could not determine. If these bracelets are a part of their traditional costume, they offer one more proof that the Colorados had some traffic with the indigenous people of Quito in pre-Columbian times. The nose plug completes the ornamentation of the men, and there is little change of costume during the festival periods.

Like that of the male, though longer, the main article of clothing of the woman is a skirt (*tuná*) that extends below the knees almost to the ankles. It differs somewhat in decoration from the male loin cloth in that the designs have a more pleasing arrangement with short cross-markings emanating from the long lines. Blue and red on a white background are the dominant colors. The hair of the women, as before noted, is left long and parted in the center. They wear no colored sash like the men, but purchase from the village a bit of cloth, predominantly red in color, which they wear tied around the neck and allow to fall over the back as a pro-

tection against insects (pl. II, *a*). This is called *piúnu* and it corresponds more or less to the *tapé* of the men. No *piúnu* of native weave was noted. The small necklace, which completes the female costume, is discussed later.

Both sexes go barefooted, but there is a tendency, when working for the whites and when entering fields where snakes might be encountered, for the men to wear crude, native made sandals, really just a doubled piece of roughly tanned cowhide. Often, when clearing their plantations, some of the men will don trousers and this foot-gear, but as soon as a visitor is seen, the Colorado disappears, washes, and returns in his traditional dress.

BODY DECORATION

Perhaps the most singular custom of the Tsáatchela is the coating of the hair and entire body with the vermillion color obtained from the seeds of the bush *Bixa orellana*, known to the Spanish as achiote.

A slight confusion of names occurs in the literature about achiote. The generic name *Bixa* has been derived from the word *bija*, an indigenous Haitian word for achiote. Achiote, by which word it is commonly known on the west coast of Mexico, Central and South America, is a corruption of the Nahuatl word, *achioltl*. The French call it *roucou*, derived from the word *urucu* used by tribes of the Guianas.

Achiote (*mu*) is cultivated and is found planted in

abundance around the houses. The bush grows as high as 16 feet and produces blooms of both white and pink, not unlike the cherry blossom in appearance (pl. III, *a*). Later, each blossom produces a pod, the size of an apricot, which splits into four sections as it dries on the tree. Arranged within the pod are many small vermilion colored seeds (*mu-ne*), shaped similarly to those of a large grape. The plant flowers three times during the year, and as each crop of pods is gathered, the seeds are extracted and stored in troughs made from a hollowed log.

To extract the color, the Indian places a good quantity of the seeds in his hand, expectorates upon them or wets them with a little water, and rubs his hands together, as one might make suds with soap. He then throws aside the seeds and applies the color to his hair, an act constantly repeated until it and the scalp are thickly covered with the red paste. The face and the whole body are then similarly covered. The testa, or waxy substance in the achiote, helps the color to adhere, like theatrical grease paint, without any addition of grease, although the Cayapas are said to mix the dye with jaguar fat before application.

There is scarcely a moment during the day when the Colorados are not seen completely red, and the painting custom is doubly emphasized before undertaking any of the tasks involving contact with forest or stream, where lurk for them the genii of everything. The color is quite indelible and the Indian

can pass through a heavy rain with the coating still adherent and little disturbed. Its removal from the body entails considerable soaking and bathing, and the clothing even after prolonged washing is never completely cleansed of it. Among women, it is applied only to the face, except during festivals, when the roots of the hair are also coated.

The symbolism of this singular custom is most difficult to determine. Inquiry among the oldest and those possessed of the greatest curiosity and intelligence elicited no information as to the reason for the practice, nor could any legend in connection with it be obtained. While it is true that many of the primitive tribes throughout the Americas use the achiote as body paint, none nurtures the idiosyncrasy to such lengths as do the Tsáatchela. The Tucanos, Shuâras, Canelos, Záparos, and Cayapas all paint the face, but seldom the hair, and never the entire body. The writer believes that in ancient times achiote was used as a blood symbol. Throughout the Ecuadorean highlands, achiote is put into food, though it adds no flavor whatsoever. No Quechua Indian will eat food unless it is so colored, and even a few mestizos demand its use in cooking.

While it is evident that the Colorados do not confuse achiote (*mu*) with blood (*asá*), yet, as it is used in hunting, fishing and funeral ceremonies, etc., there may be some idea of increasing the vital principle in its application. It seems also, from the

little to be learned, that it is considered a charm against witchcraft, and, in particular, as a protection against injury from falling branches of swaying trees caused, supposedly, by a shaman blowing across magical stones.

Such a blood symbolism is a custom similar to that of the natives of Australia (as related by Spencer and Gillen¹²), who smear their bodies with a red ocher which to them becomes, with the ritual, an exact equivalent of blood. Orton,⁷ who entered the Amazon in 1870, spent some time among the Yaguas, located just below Iquitos. He observed that they too covered their whole bodies with achiote and he asks (p. 320): "Is the name Yagua (blood) derived from their practice of coloring the body red?" Lévy-Bruhl⁴ insists that "red ocher with which these natives [Central Australia] constantly smear their bodies is not merely used by them for ornamental purposes. It is a special symbol of blood, and since their symbolism is realistic, to them the ocher is the actual equivalent of blood—it *is* blood."

The Cayapas, closely related culturally to the Colorados, also paint themselves with achiote (*caimu*), but always in a series of intricate patterns with black designs forming the general color arrangement. They do not dye their hair, nor do they wholly paint their bodies except on the usual festival occasions, although the face is painted during the construction of a canoe, before departure on hunting expeditions, etc. It must be remembered that, ac-

cording to Pedro Simon,¹¹ the Chibchas on the death of a chieftain, disemboweled the body and wrapped it in garments dyed red with achiote. In the interment that followed, the bodies and hair of the mourners were painted with achiote and their cloaks were stained red with the dye.

Over the achiote base, both women and men among the Colorados paint a simple design of black (*nali*) lines with a dye obtained from the juice of the pod of the *Genipa americana*. A small stick is used to apply the paint, and the designs are exact reproductions of the simple pattern appearing in their woven textiles—horizontal lines with shorter pendant perpendicular lines set at regular intervals (pl. IV). Some of the men vary their paintings. One observed at a festival, had painted his feet and part of the lower legs jet black, appearing from a distance as if he were wearing a pair of black socks.

ORNAMENTS

A popular ornament among the women is a necklace of the sheaths of the vanilla bean and of other spices (pl. V). These are worn throughout life and are continuously replaced as the aromatic fragrance disappears from the dried pods. One of the most used pods is that of the bush called *mutrú* and to a necklace of these, (*mutrúka*), are attached mirrors, old silver pieces, small empty bottles, safety pins and other curios—having, one would suppose, the character of amulets. The men sometimes wear

the same type of amulet necklace at small festivals. No feathers of the various beautiful indigenous birds are used in any way for ornament or decoration.

NOSE ORNAMENTS

Contrary to the general primitive method of piercing the nasal septum for the suspension of ornaments, the Tsátcela puncture the center of the tip of the nose through into the right nostril, and wear a small wooden plug (*kimfudse*, from *kimfu*: nose) in this aperture (pl. VI).

During festivals, the wooden plug is replaced by a silver ornament (*sopue*). This metal pin is nearly 5 inches long, and soldered to it, about an inch and a half from one end, is an inverted cone-shaped cup which, when the pin is inserted into the outer orifice, prevents it from slipping entirely through the aperture. At the same end of the pin a silver crescent is suspended by light chain links (pl. VII).

The ornament is obtained in Quito, from which area, it is believed, came similar ornaments in pre-Columbian times.*

Neither the Colorados nor the Cayapas pierce the ear lobes or wear earrings, and the latter do not

* In the Museo Arqueológico Nacional, Madrid, is a painting of three of the "leading colored citizens of Esmeraldas" done by Andrian Sanchez Galque at Quito in 1599. The deeply pigmented men are clothed in high Renaissance ruffs, wearing ear and nose ornaments. Suspended from the nasal septum of the center figure is a crescent ornament similar to that which adorns the *sopue* of the Colorados.

employ the custom of *kimfudse*. Tessman¹⁴ records that the Uitotos and the Boros puncture the nose by making slits on either side of each nostril in which small wooden plugs, dyed red with achiote, are worn.

DWELLINGS

The dwellings of the Colorados are placed in the deep forest, preferably on a rising knoll of ground near a stream of water. The tribe employs an extremely disperse rancheria form of settlement. Two houses are never found within sight of each other, although clusters are built within a radius of 2 miles. The tendency is to maintain long intervals between groups of houses, the clusters consisting of four to six dwellings built within hailing distance, 300 yards to a half mile apart. Whether this arrangement is an expression of the antisocial tendency found among all tribes of tropical South America, as postulated by Karsten³ (p. 137), or merely an expedient adapted to the necessities of agricultural activities, is a moot question.

The houses (*yāā*) consist of two sections, a large unwalled area in which visitors are received, and an enclosed portion (*manáchi-yāā*) in which the cooking is done and where the members of the family sleep. The houses are rectangular, and dimensions vary depending upon the size of the family. The average is 30 x 15 feet, and the ratio of length to width remains constant (pl. VIII). The roof (*widápe*),

constructed of palm thatching, has an incline of about 35 degrees, and under normal conditions it need not be changed for from five to ten years. The mud floor of the outer portion is packed hard from constant use and is kept clean with small brooms made from a shrub (*kapétatsa*) which is planted around the house. Benches of balsa wood held together with chonta pegs are placed about the open "room," and to one side of it the marimba is suspended from the cross beams. Near the eves, corn is hung for drying, fishing nets are suspended from the cross rafters, and the canoe-shaped hollowed logs containing achiote seeds complete the general picture of the outer portion of the house.

The walled room is made from split palm trees (*Bactris* sp.) embedded in the ground and tied together with small lianas. The door (*tamóla*), which leads from the outer into the closed room, is made of palm trunks held together by lianas and is a clumsy though durable structure. Generally the enclosed part of the house is divided into two portions, the women's quarters (*chikiānkatsúa*) and the men's (*chikiānibé*), although such division is more implied than actual. There is no distinct division such as is found in the dwellings of the Shuâras, for example. The cooking fire (*atannín-karde*), with a three-legged arrangement for the support of vessels, is built either at the end or in the center of the walled room, there being no roof outlet for the smoke which finds its own method of escape. Over the

fireplace is a rack, 5 feet in height, on which are placed the cooking pots, drying peppers and corn, and the day's supply of bananas. Amulets made from the jaws of monkeys, capibaras, and deer are suspended in the smoke, and bananas, in various stages of ripening, hang from the rafters.

To the left of the fireplace are piled stacks of fuel wood, split and ready for use. The interior of the house is usually clean and rather well ordered. The sleeping racks (*lóa*) are made of halved balsa logs, split lengthwise. These are placed side by side to complete a rack 6 x 4 feet, with the flat portion upward, and are secured with chonta spikes to a frame of round balsa logs that serves as a base. The whole bed, which does not stand more than 10 inches from the ground, is very light, comparatively soft, and is not permanently located. The same toga-like robe of sheeting material used by the Indians in inclement or cool weather is used for a covering at night.

At the present time, fires are ignited by matches, though a sort of firebrand (*nicúmatahade*) is known. Questioned closely, the elders could not reveal how once fire had been produced by friction. Such earlier method has been entirely lost, so much so—and this is a commentary on progress—that while fishing some distance from their homes and the time came to prepare a fire, the Indians were quite helpless until the author produced matches.

COOKING VESSELS AND PREPARATION OF FOOD

Women make the cooking pots (*néda*) and small drinking cups (*bóle*) from clay. Although they are known to purchase some metal pots from traders, they prefer vessels of their own manufacture. Almost all the young women and girls make these pots throughout the year, and the author's observations through several weeks with the tribe do not bear out Karsten's statement that: ". . . they do no longer make their pottery themselves, but buy it from the whites"³ (p. 141). The ceramic industry is by no means abandoned (see pl. IX).

Flesh foods of the Colorados occur in considerable variety. From the deer (*mána*), monkey (*urungu*) and members of the rodent genera—principally the agouti (*cúru*; Quechua: *huatusa*) and the huanta * (*walé*)—comes a greater part of the supply. Fish include the *boca chica* (*watsa*) and the *boca chupa* (*buncu*) of the Spaniard, and these, together with large river turtles (*tsara-umpi*), giant snails (*tónke*), and oysters (*katantekran*) are all a part of the Indians' omnivorous diet. The large palm weevil (*Rhynchosporus palmarum*, LINN.) is regularly eaten by the Colorados and is considered by them, as by all of the indigenes on either side of the Cordilleras, as a delicacy. Pigs and guinea pigs are grown for food and for sale to the white settlers. Chickens also are raised and are known under the Quecha terms: hen:

* Huanta (Quechua): the water-cavy (*Hydrochoerus capibara*).

huallpa; cock: *huallpa-apaga*; chicken: *huallpa-na*. Chickens and eggs are sometimes eaten, but are generally sold to the whites in and about Santo Domingo.

The banana is the principal food plant, several varieties of which are under cultivation by the Colorados. The banana is not indigenous to America. Tomás de Berlanga, Bishop of Panama, seems to be generally credited with introducing its culture on the island of Santo Domingo in 1516, whence it spread to all the tropical areas of the western hemisphere. The rapidity of its distribution might be made the subject of an extended survey of the tribal intercourse of the primitives of the New World. Orellana, when he sailed down the Amazon in 1541, found plantains all along the reaches of the upper river, which established the rapidity of its spread as little short of miraculous.¹⁶ Few tribes have common names for the great variety of bananas under cultivation, each species having its individual designation.

Most esteemed by the Tsátcchela is the long reddish species of plantain known to the Spaniard as *platano macho* (*Musa paradisiaca*). These are stripped of their skins and boiled until half cooked, when they are mashed with peppers on a wooden metate-like board, formed again into the shape of bananas (pl. II, *a*), and then steamed. The dish is served with a watery stew of monkey or *huatusa* meat. The fruit is seldom eaten raw.

There seems to be no regularity in meal hours, although something is eaten at midday and, invariably, a meal is served at dusk. Food is served on large banana leaves around which squat the men. The women eat apart. The eldest woman serves the stew in a clay bowl, the men helping themselves to the prepared bananas in the center. Food is not seasoned with salt in its preparation, but a crude salt rock, which is licked individually, is always present at repasts. Food is prepared by steaming, boiling, or broiling. It is never fried in grease.

Agriculture is highly developed and furnishes the principal means of subsistence. The preparation of the fields is similar to the method used by most of the Indians in the New World. At the height of the dry season (*fu*) first the smaller vegetation, then the trees are cut, and the brush material is fired sometime in September. The larger trees are left to rot. The ground is prepared by the men and is planted at the beginning of the rainy season (*pilu*; from *pi*: water). After that the women assume an equal share of work in the fields. Agricultural work is sometimes done communally, when an individual will invite several neighbors to assist in the preparation of a field. Before the work commences, a small fiesta is held which results, usually in a two day carousal. While there appears to be some stipulated remuneration for these neighborly services, the author could not ascertain its exact form. It is quite probable that in some instances workers are paid

by the gifts of definite articles, and in others by the host lending like aid to those who helped him.

Plantations (*yáwhita*) surrounding the house are distinguished from those, really subplantations (*míya*), located a short distance from the dwelling. As the banana is the chief item of food, the various species, known by names obviously Spanish—*ano*, *guinea*, *seda*, *oro*, are generally planted in the *yáwhita*. Here also are found yuca (*Manihot* sp.: *kachú*); camotes (*Ipomoea* sp.: *le*); and yams (*Dioscorea* sp.: *fibale*). Also in the immediate vicinity of the house are found the achiote bush; peppers (*Capsicum* sp.: *tú*); the calabash tree (*Crescentia* sp.; *báku péle*), from which gourds (*báku*) are obtained, and the bush from which brooms are made.

In the secondary fields are usually planted maize (*Zea* sp.: *píyo*) which is eaten fresh, but not when dried, additional yuca tubers, sugar cane (*Saccharum* sp.: *éla*) from which an intoxicating drink (*maláka-chisa*) is made, and pineapples (*Ananas sativa*: *tcháwila*). In these fields also is found the chonta palm (*tóntomo*) which belongs to the *Guilielma* genus. The tree is cultivated for its fruit, for the hard wood from its trunk which is constantly used by the Colorados, and for the savory palm cabbage (*ará*). The young tree is regarded by the shamans as having magical powers because of the spines on its trunk. It is also used as the host for the narcotic vine (*Banisteria caapi*; SPRUCE) known to the Colorados as *népe*.

Népe is identical with the *aya husaca* (the vine of the souls) of the Quechua; the *nátema* of the Shuâra; the *gadana-pire* of the Tucanos living on the Rio Uaupes; the *caapi* of the Tupi; and the *ligoa geral* of lower Brazil. It is a vine belonging to the Malpighiaceae and was identified by Richard Spruce in 1853 as *Banisteria caapi*, the species being named from the *caapi* of the Tupi idiom. It is used by tribes on both eastern and western sides of the Andes, who live in utter ignorance of each other. The author never found it growing except under tribal cultivation (see Appendix).

In still other, smaller fields, a considerable distance from the houses, various plants from which fish poisons are made are found under cultivation. Of these, two are the most common: *tóte*, a *Clibadium* species that yields a darkish gray color when immersed in water, and *cáhali*, the typical fish poison known to the Spanish as *barbasco* (Quechua: *varvascu*) which probably is *Lonchocarpus utilis*.

Both sexes seem to expend an equal amount of labor in cultivating and harvesting the crops, and the burden of transporting products from field to house or market is usually shared equally. The fact that the Colorados have few enemies and therefore find no necessity for having protective weapons always in readiness against attack, probably explains the men's willingness to share in burden carrying.

FISHING AND HUNTING

The Colorados depend upon fish to augment their flesh food diet. Two types of fish nets, *dada* and *ataraya*, are generally used. These are of the same construction as those of the Indians of South America in general. Nets are made by the men and are knitted from the strong fibers of the agave plant. When cast, the seine is thrown like a lasso so that almost its entire length is suspended through the water. Being weighed down by attached small round stones, it sinks rapidly and ensnares the fish. This type of fishing is almost a weekly occurrence among various members of the household. However, when it is desired to collect and dry a large number of fish, several households join to inaugurate a fish-poisoning expedition.

The fish-bed or trap used on these expeditions is similar in structure and use to those of all the tribes of upper Amazonia. A rectangular frame, approximately 4 x 6 feet, is first constructed. Reeds, spaced half an inch apart, are lashed to this, the two long sides of the frame being built up in a similar manner to a height of about one foot. This arrangement permits the water to flow freely through the interstices, while the fish are washed upon the "bed" and cannot escape.

Below a spot in the stream where fish are known to be plentiful, and at the brink of a slight fall, one open end of the trap is forced under water and weighed down by walls of piled stones leading from

the open mouth of the trap to either bank. The main bed extends in a horizontal position free of the water, supported by forked stakes, below the dam.

Two plants supply the poisons used by the Colorados for poisoning fish, *tóte* and *barbasco*.

Tóte reaches some 4 feet in height at its maximum growth. The plant is gathered, roots and all, and is brought to the river's edge (pl. III, b). Here it is piled in giant heaps several feet high and 10 feet in circumference, and is beaten vigorously with long distaffs until the *tóte* is reduced to a coarse pulp. When the beating process is completed after some hours, only about one-tenth of the original bulk remains. The pulp is then carried some distance upstream from the fish-bed and thrown into the stream, some being placed under stones so that the rushing water washes the poison extract downstream.

In about half an hour, the fish begin to show evidences of the poison and leap out of the water. To escape the effects, they move rapidly downstream to be washed onto the reed trap. Those which retire to small pools in an attempt to escape the poison, are soon affected by it and rise to the surface, feebly swimming on their sides. These are easily caught by hand. Some fish sink to the bottom. These are retrieved by the natives, who dive to the bottom and often rise with a fish in either hand and one between the teeth. Fish poisoning expeditions yield a catch running into the hundreds, which are divided equally among all the participants.

Barbasco (*cáhili*), the action of which is faster than that of *tóte*, is employed in the same manner, except that only the roots are utilized in preparing the poisonous pulp.

The Colorados know of and use dynamite for fishing, but it is seldom obtainable from the few white settlers.

In hunting, the only weapon used, except the ubiquitous machete, is the typical Spanish shotgun of muzzle-loading percussion type. While they can imitate birds and the calls of several of the larger mammals, the Colorados are not very keen hunters. Formerly the blowgun was used, but they are so scarce at the present time that one was obtained only after considerable difficulty. This weapon is 6 feet long and has a cupped mouthpiece. It is known by the Quechua name, *púcuna*. An arrow poison (*chichihuila*) was used to tip the darts. The blowgun is most inferior to those found among the Amazon groups. The shaft of this sole specimen is slightly curved and is not properly sealed to give the full propelling force.

TRIBAL ORGANIZATION

Tribal organization among the Colorados is not highly developed. Each house is generally inhabited by one family, all related to each other by marriage, and the household is ruled by the elder. Similar to the Jivaros in this respect, there is no chieftain of the tribe. Any rule that might be said to exist is

now divided among three shamans in various districts of the tribal territory. Zaracáy holds sway in the region southwest of Santo Domingo, Corpintínyu in the group about the Rio Toachi north of Santo Domingo, and Alejandro north of the settlement of San Miguel.

These shamans engage in auguries, cure the sick, and even settle disputes when they arise. All are extremely wealthy, as riches go among the Indians, and are regarded even by the whites in the district as powerful sorcerers. Zaracáy, even in the time of Karsten's visit (1917), was one of such reputation that the white population in Quito knew of his magic, some even visiting him for his advice on matters of finance, love and sickness.

Little could be learned about matters of courtship. The Tsátcela are most secretive about anything to do with their women folk, in fact the subject is practically taboo. It was gathered that the swain helps the girl's father in housebuilding, in the fields, and accompanies him on fishing and hunting expeditions. In time, consent to marriage is given, when the bride and groom go to live with his parents. It is suspected that if the bride's father is a powerful shaman, his roof may shelter the couple rather than that of the groom's father.

The Colorado is monogamous, and marriages made by the shamans are confirmed and made legal by the Dominican padres on their periodical visits to the village. The native ceremony is usually cele-

brated by the whole village in the continued drinking of a fermented sugar-cane juice.

The cane is juiced by an ingenious press which stands alongside the house. This device consists of two chonta log rollers, held in contact by a vise-like arrangement of four larger upright logs, standing some four feet out of the ground, firmly lashed together in pairs. The pressing surfaces are deeply scored to increase friction and the rollers are turned by wooden cross-bars lashed to their outer ends. A native usually stands on the upper roller to add pressure, and the juice of the cane is caught in a log trough.

While the cane is being pressed, the women peel yuca, boil it until soft, and knead it on the metate-like board. The soft mass is then thoroughly masticated. The Colorado women do not expectorate the yuca in long streams as do the Shuâra, but remove the mass from the mouth with the fingers, and place it on a large banana leaf, permitting it to ferment partially (pl. II, b). Later, the yuca is added to the sugar-cane juice in the wooden trough, covered and left for further fermentation. The resulting drink (*malákachisa*), despite the somewhat disgusting phases of its preparation, is really quite tasty. It has a slight resemblance in flavor to apple cider, and is most potent; yet, though the Indians imbibe it copiously, and become drunk, they quickly recover and with few ill effects. This is not the case when they drink intoxicants procured in the villages.

The author could learn nothing of crime and its punishment among the Colorados. The local *teniente político* in Santo Domingo stated that no act amounting to a crime had been charged against a Colorado during his many years residence. Occasionally, the Indians are jailed for drunkenness, but this is rarely necessary as they are cared for by their own families when in this condition. When so convicted, the prisoner is usually fined, or, if that cannot be paid, an alternative period of compulsory labor is exacted. Quarrels occur usually during periods of intoxication, when the men fight by holding their arms in front of them and cuffing each other with their silver wrist plates, sometimes causing deep, but not fatal gashes.

The Colorados are people of exemplary character whose sense of honesty the white man would do well to emulate. After living in their midst for weeks, and despite many absences from camp, when no watch was placed over equipment and food stuffs, not an article was stolen from the author's party. These Indians are a frank, outspoken, industrious people, possessing a physical activity unusual in those who live where Nature provides the necessities of life in such abundance.

CEREMONIES

Kimfúdse-wáma, the nose-piercing rite, occurs when the boy has reached an age of 10 or 12 years. It is really the remnant of a puberty ceremony, and

as it is usually followed by a two day drinking orgy, it offers considerable attraction to the neighborhood. In preparation, the neophyte first coats himself from head to foot with achiote, paints black lines on his face, and imbibes considerable quantities of *maláka-chisa*, in some instances also drinking the narcotic *népe*.

The piercing operation may be performed by one of the shamans or by the elder of the boy's house. The puncture is made with a thorn from the trunk of the chonta palm, though nowadays a large needle is often used. The operation is distinctly painful but the young boy is supposed to prove his manhood by not uttering a sound. The needle is guided from the tip of the nose and pushed through into the right nostril. A bit of agave fiber or, sometimes, a thread is then pulled through the perforation and for two weeks or so the boy works this string back and forth until the hole is enlarged sufficiently for the insertion of a wooden plug called *lánsa*. This is about $\frac{3}{4}$ of an inch in length and has the thickness of a match stick. It is always made from the orange tree though the reason for this could not be determined. The native term may be a corruption of the Spanish *lanza* (lance), though both the Colorados and the Cayapas know the orange tree by that name. After a matter of several weeks, the aperture is sufficiently enlarged to permit the insertion of the permanent wooden ornament, the *kimfúdse*.

At the present time there appear to be no puberty ceremonies for females.

The male Colorados are distinguished by two names, one given them at birth by their parents—usually the name of some animal—and the other, that given them by the Dominican padres at the time of baptism. The original names are usually known only to the Colorados themselves, and are not commonly used outside of the tribe. Those given under church auspices are all Spanish and, as the Indians like best to have *compadre* (godfather) prefixed, most of them are known to the white settlers as Compadre Carlos, Compadre Nicolas, Compadre Enrique, etc. Though the women, who are most shy, must also receive both tribal and baptismal names, the author never heard a female addressed by name during his stay among the Tsátcchela.

The numerical system and terminology of the Colorados has been borrowed from the Quechuas. The time of day is told with certainty though not in clock numerals, of course: and planetary movements, moon changes, etc., are recognized. The month cycle (*mom-pui*) is fully understood, the native term referring to the return of the full moon. The seasons are undifferentiated except by division into dry and wet.

MUSICAL INSTRUMENTS

The music sense of the Colorados is rather highly developed, due probably to the intrusion of the marimba from the exotic Ethiopian culture of coastal Esmeraldas, already mentioned. The instrument as

found among the Colorados has two complete scales and is composed of 20 notes, displaying a rather good nuance between each. The tonal bars are made of the hard chonta and are laid across cloth-covered strips of the same wood. To give resonance to the tone, a bamboo tube is suspended under each note-bar. These tubes diminish in length from one end of the instrument to the other, the shorter resonators, obviously, producing progressively higher notes (pl. X). From this primitively constructed instrument comes some distinctly impressionistic music. The marimba is hung from house rafters and is usually played by two men, one concerned with the melody, the other with the bass accompaniment. Five and seven note flutes, a balsa wood drum roughly cone shaped by being tapered toward the base, with a head of deer hide, and rattles are also found in use among the Colorados. During festivals these give a fine pattern of primitive music. Native dances have degenerated into a sad imitation of the fox-trot and the waltz of more sophisticated lands, copied from the graceless antics of the mixed breeds, the *cholos* of the villages.

DISEASE AND TREATMENT

Living a rather healthy existence in altitudes above the usual range of the malaria-carrying *Anopheles*, the Colorados, generally, have few ailments that are native with them. There is some malaria, which causes swelling of the spleen and anemia, and some

skin infections, that called *pinto* by the Spaniards, being seen especially in older people. Many ticks, and, of course, the ubiquitous neotropical jigger, nigua (*chipsi*), are ever present. However, the latter gives little annoyance to the Indian, because of the efficient manner in which he rids himself of the egg-sac of the *Sarcopsylla penetrans*.

Epidemics of smallpox and measles have largely accounted for the high death rate among the Colorados. Because of the inadequacies of their counting system, the elders of the tribe were unable to express the number of Colorados who had succumbed to smallpox, alone, within their memory, though they estimated that in the last three decades several hundreds had died of the disease.

Infant mortality must be at least 50 percent. Through the first three years, particularly, whooping-cough (at times epidemic), enteric diseases, the common cold, and, of course, smallpox take a heavy toll.

The drug armamentarium of the Colorados is not very impressive. The three leading shamans seem to know about the preparation of drugs from indigenous plants and their administration, but, generally, knowledge of treatment by physical means is most limited.

Shamanistic cures of tribesmen who are possessed by a demon (*yúkangkeáhoe*; from *yúkang*: demon) follow the expected primitive pattern. Lack of understanding or appreciation of pathological proc-

esses accounts for the inability to distinguish between witchery and disease. The Colorados do not particularly maintain secrecy in connection with their cures, and the author was permitted to witness the preparation of *népe* and to be present at a curing ceremony.

The ceremony is held in a roofed shelter (*chíká-éya-népe-chuchíchu*) located some 200 yards from the shaman's house. Seats of balsa (*nána*) are arranged about the ground, a small drum (*kunúmu*), a rattle (*gauzá*), and other paraphernalia of the witch doctor are suspended from the rafters. The area is clean and neat, except for deposits of balsam and candle grease, which would seem to indicate that most cures are performed at night.

As in the case among the Indians of the Amazon country, the cause of illness is considered to be a magic arrow—usually a chonta spine—directed against the sufferer by an evil *yúkang*.

The first step in the ceremony is to prepare *népe*. Stems of the vine from which the decoction is to be made are sectioned from the lower portions near the ground. The outside bark is removed by scraping, when the exposed root is pounded with a wooden club until the fibers are well separated. These are then placed in a bowl and allowed to boil for at least an hour. The larger wood fibers are then strained off, leaving a residuum of rust-tinctured liquid and macerated pulp. It is then placed in a small gourd and set aside to cool.

When the *népe* becomes tepid and cool enough to drink, the shaman quaffs a portion of that within the gourd. Some is swallowed, some is expectorated. At intervals of several minutes, this procedure is repeated until about a liter and a half is consumed. Though the effect is not instantaneous, a general body tremor and an induction of a quasi-stupor with dilation of the pupils occur within a short space of time. Within an hour, a general change is noted, and the shaman's body begins to sway as he chants inaudibly. Oftentimes he stands and shouts and is returned to his seat by the assistant. After a while, the effects of the narcotic seem to wear off, and the shaman arises, passes outside the shelter, and vomits. Upon his return, he unwraps five stones of various sizes, the largest being twice that of a hen's egg, and arranges these on a small stump which has been covered with cotton cloth dyed with achiote. He then resumes drinking, swallowing a portion of *népe* and blowing some across the stones over which he chants (pl. XI, *b*). This ritual is followed until no more *népe* remains.

During this time, the patient has also been given several drinks of the drug and when both the sufferer and the shaman are sufficiently narcotized, they grasp hands and dance around the stump and the five magical stones. Karsten³ (p. 148) called this the "stone dance" (*shukáde*) and recorded the shaman's chant as *amepéke*, a word that infers "curing by chanting." After dancing for some time,

the sufferer stretches himself out on one of the balsa benches, while the shaman continues drinking *népe*, as he beats the small drum (pl. XI, *a*). Finally, he goes to the patient, and proceeds to massage the stomach area as if endeavoring to locate the magic arrow which has caused the illness. The shaman has already secreted a chonta spine, taken from the pouch in which his paraphernalia are kept, and after much manipulation he "withdraws" it from the sufferer's body. This is known as *yúkangalárie*: extraction of the demon.

Following the removal of the "demon," the patient is given any one of the native herbal medicines, its choice being dependent upon the whim of the shaman, or by direction of the type of hallucination he may have experienced while under the influence of *népe*. While there probably is some therapeutic value in the potion administered, there seem to be no standard armamentaria among the shamans.

If there is an audience to the cure, and there is no apparent attempt at secrecy, the spectators also imbibe the narcotic and enter as a body into the cure.

In general scope, if not in precise ritual, the ceremony is little different from those observed among the Canelos and Shuâras.

RELIGION AND SUPERSTITIONS

The subject of primitive religion and superstition is involved, and presents dangerous morasses for one not fully trained in the study, and the author's

short residence among the Colorados did not permit full investigation into the basic myths of the people. Dr. Karsten, a long experienced and highly qualified observer among South American tribes, has supplied a considerable amount of material on this subject, and, as his paper is not too well known, several passages which deal with the religion and superstition of the Tsátcchela are quoted at some length³ (pp. 144-152):

Although the Colorados are Christians by name, they have naturally preserved many of their ancient religious beliefs and practices. The influence of the Christian religion mainly shows itself in the notion they have about a highest god and creator of the world, whom they call *Diuchi* (Spanish, *dios*: god). About this supreme being the Colorados have the following myth, which seems to be a mixture of Christian and genuinely Indian ideas.

In the primitive times the Tatchila (Colorados) had no garden fruits and they were working in the fields to get such. Diuchi came along and asked the Colorados: "What are you working at?" The Colorados answered: "We are working to get manioc." "I will give you manioc," Diuchi said; and the Colorados had manioc. And the devil, Jukang, came behind Diuchi in order to kill him. "When did that Old One pass here?" Jukang asked. "Oh, that was very long ago," the Colorados answered. And Jukang disappeared.

Another day, when the Colorados were working in the fields, Diuchi again came along and asked them: "What are you working at?" "We are working to get plantain," the Colorados answered. Diuchi said: "I will give you plantain." Jukang again came behind Diuchi to kill him,

and asked the Colorados: "When did that Old One pass here?" "That was very long ago," the Colorados answered. Jukang disappeared, and the Colorados had plantain.

A third time the Colorados were working in the fields to get maize, and exactly the same was repeated. Diochi gave them maize for nothing, and Jukang came behind to kill him.

A fourth time when the Colorados were working in the field Diochi again came along and asked them what they were working at. The Colorados got vexed that Diochi always came and asked them what they were doing, and answered: "We are working to get stones." And Diochi said: "I will give you stones." And the stone arose, which cannot be used for food. Jukang again came behind Diochi and wanted to kill him, but Diochi went up to heaven (*jokidóh*) where he remained. However, Diochi sent his cock (*Huallpa*) down to earth to help the Colorados. The Colorados assaulted the cock of Diochi and killed him. But the cock began to live again, flapped the wings, and rose up to heaven to Diochi. There Diochi and his cock have stayed ever since. Jukang alone has remained on earth.

In this myth there appears a feature which is pretty common in myths on the origin of human culture, namely, the benevolence of the divine Creator and the ungratefulness of man. A similar myth, genuinely Indian, was told me by the heathen Jibaros in eastern Ecuador, relating to the Earth-mother Nungüi. As to the Colorados, it is evident that the story about Diochi and his cock (*Huallpa*) is but a native version of the Christian story about God who sent his Son down to earth for the salvation of mankind.

In the practical religion of the Colorados spirits or demons of a lower order, called *jukang*, play the main part. These demons are in their nature nothing but spirits of dead Colorados, a fact which the Indians themselves seem to be quite aware of. The souls of certain persons who do not find rest in the grave wander about as revengeful demons, doing harm to the living and especially visiting them with disease and death. Many of these demons are regarded as spirits of wicked sorcerers. That the *jukang* are ordinarily spirits of dead Indians also appears from the belief of the Colorados that they are in their external appearance like the Colorados themselves, wearing their native dress and ornaments and with the face and body painted red. The soul or spirit of a recently dead person is called *ohkóh* or *ohkohelé*, with which latter word the Colorados especially denote a revengeful and feared disembodied spirit. But between the *ohkóh* or *ohkohelé* and the *jukang* there is no essential difference.

The spirits haunt the gloomy forest and especially move about in the dark. The Colorados therefore, like all Indians, fear darkness. The *jukang* may even occasionally visit the habitations of the living in a visible shape. Certain remarkable places and localities are looked upon as the abodes of the *jukang*. The most important of these are the great volcanoes Chimborazo and Cotopaxi, which are inhabited by the spirits of malicious sorcerers. The "demons of the hills" (*duh jukang*) are supposed to send grave diseases, and consequently the medicine-men, when curing patients, in their incantations especially invoke these demons. The same holds true of the deep lagoons upon the mountains, which are looked upon with superstition on account of their mysterious black and icy cold water. The Indians assert that the water in some of these

lagoons rises and falls with the water in the sea, and sometimes it bubbles as if it were boiling. Such lagoons are called "angry lagoons" (*papu mudúh*), and the *jukang* inhabiting them are believed to be spirits of evil sorcerers, just as are the demons of the hills. Hence these demons also are invoked by the medicine-men when curing disease.

The *jukang* are also active in striking phenomena of nature such as hurricanes, thunder, and lightning, as well as in certain wild animals and venomous reptiles. When a jaguar attacks an Indian and kills him, the Colorados say that it was an evil *jukang* who had taken the shape of this wild beast. The same belief is held of venomous snakes. When an Indian is stung by such a reptile and dies of the consequences, the Colorados take the accident to be the result of demoniacal operation. With the snake's poison a *jukang* penetrates into the body of the patient. The latter is therefore called *jukangkeáhoe*, i.e., "possessed by a demon." It is to be noted that the forests of Santo Domingo abound in venomous reptiles, and that almost every year some Indian falls victim to their stings. I might also add that the same superstition about the jaguar and about snakes prevails among the Indians of eastern Ecuador also, and is evidently common to all tribes in tropical South America.

* * * * *

When a death takes place among the Colorados, the relatives of the deceased abandon the house as well as the plantations around it, thus causing themselves great damage. That house, according to the belief of the Indians, is afterwards haunted by the disease-and-death-demon, who is looking for more victims among the surviving relatives. The corpse, however, is not buried in the house, as is the custom among many Indians, but outside in the

forest. Formerly the stem of a big chonta palm, hollowed out, served as a coffin which, after the corpse had been laid into it, was carefully covered and buried. This very day, after the dead has been buried, a small ranche is always erected over the grave. Round his waist or finger a cord is tied, the other end of which is fastened to the roof of the small hut. As long as this cord is unbroken it is believed that the soul dwells with the body in the grave, and the due cult is paid to it, food and drink being in various plates and cups placed on the earth round the tomb. But when, after the lapse of some months, the cord rots and gets broken, the relatives say: "Now the soul has left the body and gone up to heaven (*iokidóh*)."¹ And from that time they no longer pay him any cult.

Like other important incidents in the life of the Indians, a death must be celebrated with a feast. The playing of certain games and drinking of brandy form the most essential part of it. During the first night after the death the nearest relatives have to keep watch at the corpse and are not allowed to sleep. It is regarded as their absolute duty thus to honor the deceased and to follow his soul (*ohkóh*) on its wandering to the other world. Should any one of the relatives fall in sleep that night, this would be an offence against the dead person, who would send sickness and death in revenge.

In order to keep awake the whole night the Indians entertain themselves with various games. Of these ball playing seems to be the most common. The corpse, lying on the bier, is placed in the middle of the room, and the relatives and guests, invited for the occasion, range themselves in two rows at both sides of it. The ball—which is made of rubber—is thrown by a man on the one side to the man standing opposite him on the other side, who has

to catch it with the hands and to send it back to the following man on the row opposite him and so forth. The Indian who is not able to catch the ball but allows it to fall on the ground must, in "punishment," offer a draught of brandy to each one of the rest of the party.

Another ceremonial game at the death-feasts consists in burning pieces of *palo de balsa* being thrown between the men instead of rubber balls. The Indian to whom the burning piece of wood is thrown has to catch the other end of it with his hand and immediately to throw it back to the man standing opposite him. Failing to catch it, he must offer brandy to the other players. The playing and the brandy drinking is continued during the whole night.

Ceremonial playing is by the Colorados called *tensása*. The playing with fire brands is called *ni tensása* ("to play with fire").

We know that games such as those described above, particularly taking place after death, are in vogue among most mountain Indians in Peru and Ecuador, and it is possible that the Colorados have with regard to them been influenced by the Quichua-speaking peoples of the mountain regions. However, as practised for instance by the half-civilized Indians in the region of Riobamba and Ambato, they have a somewhat different character. Among the Colorados both the ball playing and the playing with fire brands, just as the brandy drinking, have for their object to protect the surviving relatives against the disease-and-death-spirit, and are consequently a kind of purification ceremonies.

APPENDIX

BANISTERIA CAAPI

It has been often questioned whether *Banisteria caapi* is in truth an actual narcotic, or whether it has a less violent action on the nervous system, merely producing powerful psychological effects. Spruce evinced considerable skepticism as to the narcotic properties of the vine, there being then (1853) no record of any narcotic malpighiad, "nor indeed any other species with strong medicinal properties." Unfortunately, the roots collected by Spruce for experimental purposes were lost. Dr. H. H. Rusby, a member of the Mulford Expedition (1921), brought back a considerable quantity of the roots of *caapi*, which was analyzed by Dr. Harvey A. Seil ¹⁰ (p. 99).

The material, ground to a fine powder, was found to contain the following:

	Percent
Moisture	5.20
Ash.	5.02
Acid-insoluble ash65
Chloroform extract	1.59
Ether extract	1.04
Petroleum ether extract72
Tannin.86
Reducing sugars as invert.23
Other sugars as sucrose.	1.07
Crude fiber	47.25
95% alcohol extract.	8.60

Water extract	10.06
Volatile oil0042
Nonphenolic alkaloids	1.88
Phenolic alkaloids03

In summary, there were found three alkaloids: (1) a phenolic alkaloid; (2) a nonphenolic alkaloid (forming a nonreadily soluble hydrochloride); (3) a nonphenolic alkaloid forming a more readily soluble hydrochloride.

Dr. Seil reduced these alkaloids into fine crystals and returned the substance to Messrs. Sharp and Dohme. Through the kindness of Mr. R. H. Hutchinson of that organization, a portion of these was turned over to the author for experimentation. These have been given to Dr. McKeen Cattell of the Department of Pharmacology of Cornell University Medical College. Dr. Cattell writes that the experiments so far have revealed it "a very active material, producing effects on the central nervous system which appear to be of considerable interest." It is expected that in the near future further confirmation of its potency will come from Dr. Cattell.

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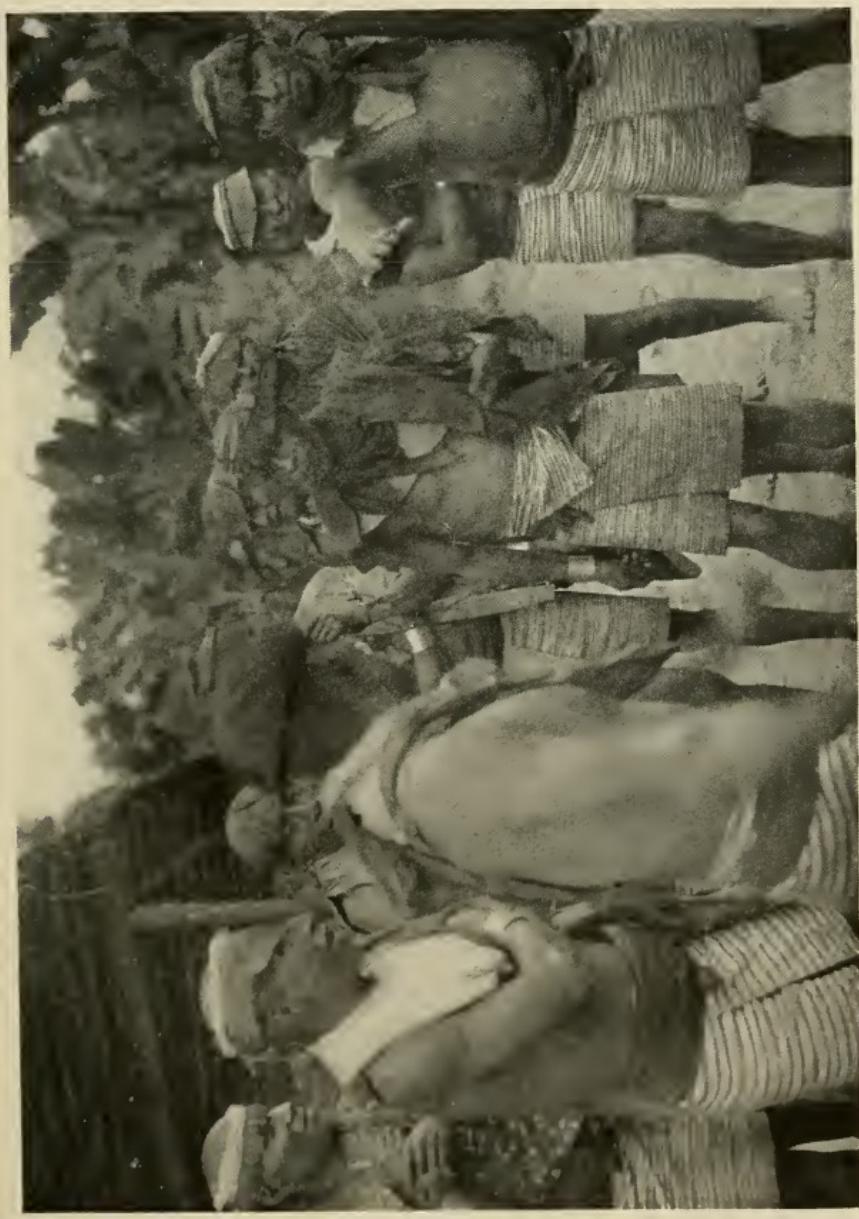
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GROUP OF TSÁTCHELA MEN AT A FIESTA
They are showing the effects of drinking *malakchisa*

VON HAGEN—TSATCHELA INDIANS



TSATCHELA WOMAN PREPARING
BANANAS FOR FOOD

PLATE II



WOMAN MASTICATING YUCA PRIOR
TO ITS FERMENTATION



MAN CARRYING MASS OF ROOTS AND
LEAVES FROM WHICH THE FISH
POISON, TÓTE, IS OBTAINED



BLOSSOMS AND SMALL DEVELOPING
BUDS OF THE ACHIOTE
PLANT

VON HAGEN—TSATCHELA INDIANS

PLATE IV



TSATCHELA WOMAN AND CHILD

VON HAGEN—TSATCHELA INDIANS

PLATE V



GROUP OF TSATCHELA WOMEN AND CHILDREN



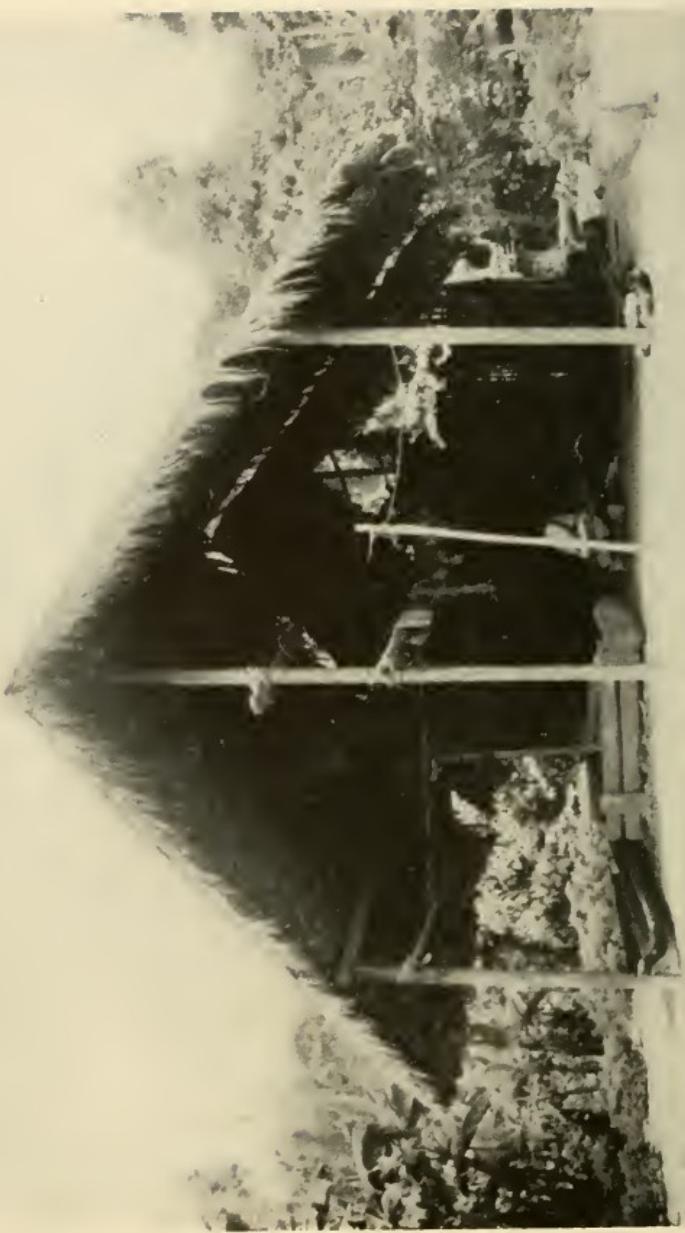
TSÁTCHELA MAN WITH WOODEN NOSE PLUG,
KIMFÚDSE, IN PLACE



TSATCHELA MAN WEARING THE SILVER
NOSE ORNAMENT, SOPUE

Above: Silver sopue, length $4\frac{7}{16}$ inches
(Cat. 19/753 MAIHF)

PLATE VIII



VON HAGEN—TSATCHELA INDIANS

VON HAGEN—TSÁTCHELA INDIANS

PLATE IX

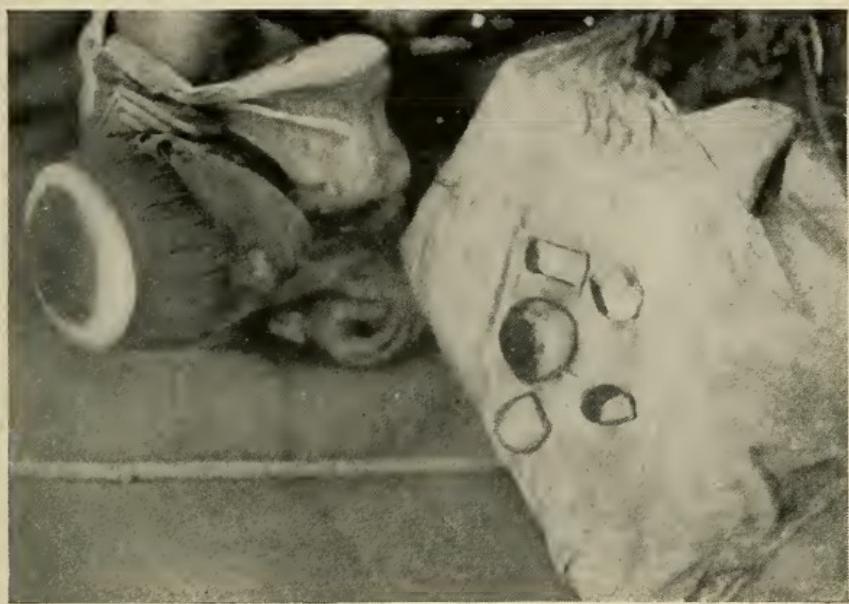


TSÁTCHELA WOMAN MAKING POTTERY DISH



TSÁTCHELA MEN PLAYING MARIMBA

(Cat. 19/752 MAIHF)



NARCOTIZED SHAMAN AT CURING CEREMONY

Blowing *nēpe* over magic stones



Beating drum (Cat. 19/764 MAHF)

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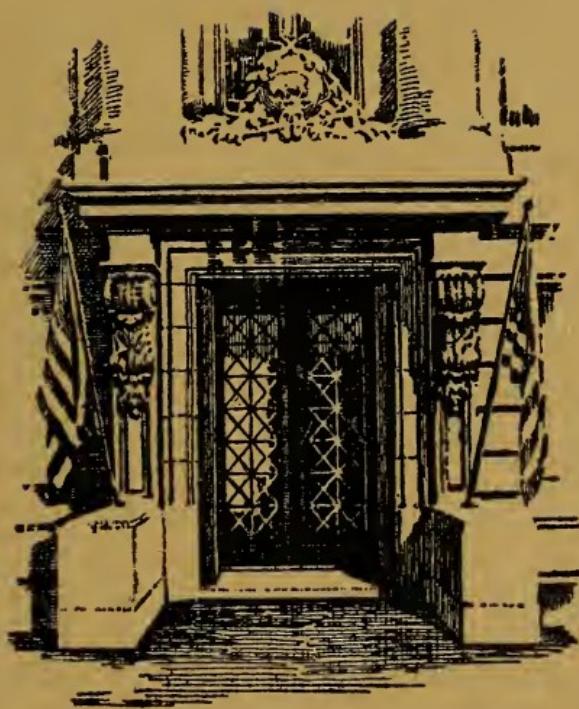
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BY

RUTH CUTTER NASH

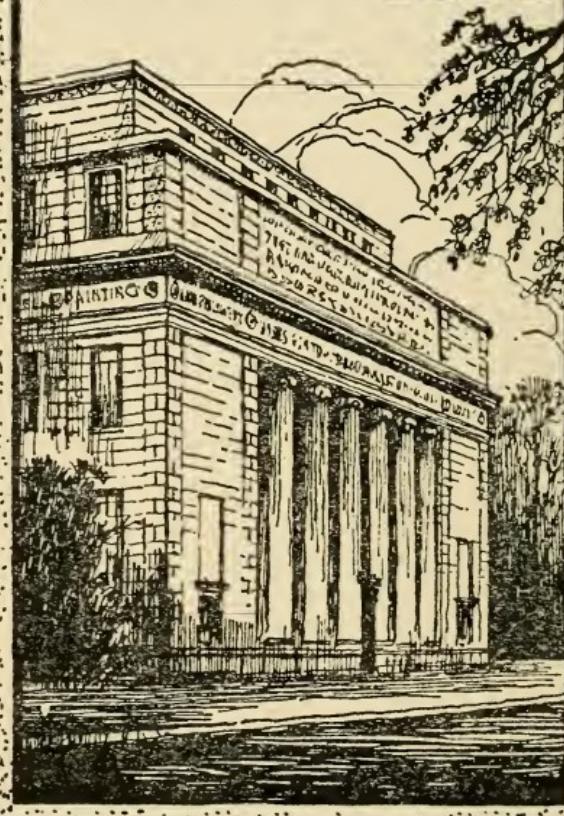
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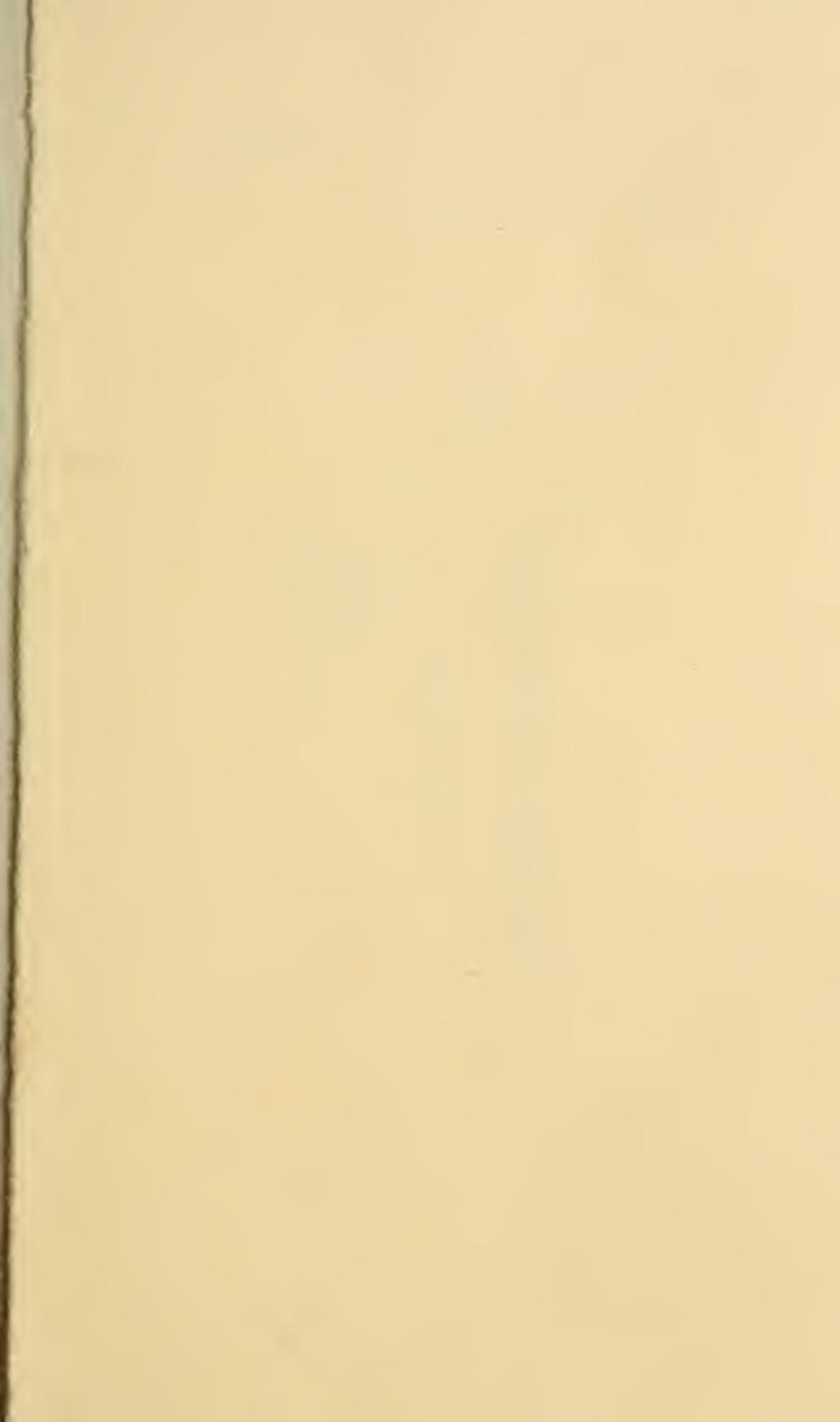
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NASH—CALENDRICAL INTERPRETATION OF GOLDEN BREASTPLATE



DRAWING OF GOLDEN BREASTPLATE LETTERED TO SHOW THE CHARACTERS
AROUND THE RIM



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CALENDRICAL INTERPRETATION OF
A GOLDEN BREASTPLATE
FROM PERU

BY
RUTH CUTTER NASH

1939

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CALENDRICAL INTERPRETATION OF A GOLDEN BREASTPLATE FROM PERU

RUTH CUTTER NASH

CIRCULAR breastplates of beaten gold were prized decorations among the Incas. These were sun symbols and, tradition has it, they also served as calendars.

One such breastplate, about $5\frac{1}{4}$ inches in diameter, presented more than eighty years ago to General Echenique at Cuzco, when he was president of the Republic of Peru, is now in the Museum of the American Indian, Heye Foundation, New York City. It has been referred to by the distinguished English archeologist, Sir Clements R. Markham, as "the most interesting relic of the Incas known to us."

The central portion of the plaque clearly depicts a large face; around this is a border of elaborate and intricate symbols, occurring in two series, concerning the interpretation of which archeologists have long been in disagreement. Tello¹ has inclined to a mythological significance built around the central face which he recognizes as that of a "feline"

sun deity. Bollaert², who discussed the plaque before the Royal Society of Antiquaries in London in 1860, regarded the border symbols as constituting a "lunar calendar or zodiac" and attempted to correlate them with the succession of monthly feasts observed by the Incas. His treatise is interesting and suggestive, but it is hardly conclusive, as there is not a single line or contour mentioned by him that pictorially or rationally corresponds to the ceremonies with which he would connect it. Markham³, Means⁴, and Saville⁵, all of whom have discussed the plaque at some length, agree in being noncommittal as to its exact interpretation although they incline to the general calendrical idea. Means goes so far as to say: "...there is some reason for thinking that the Tiahuanaco II people had a device which, although crude as compared with the Aztec calendar-stone, was more nearly a true calendar than anything else of which we know in early Peru." He calls attention to Tello's division of the border into eight sectors, and contrasts it with Saville's analysis wherein each individual pattern is isolated, and adds:

"A fact, possibly of great hidden importance, leaps into sight when the Saville and Tello arrangements are compared; for it is clear that Tello's figures C and D both contain the designs which Saville labels E and B, and it is precisely these designs which occur *four* times instead of *twice* as all the other designs do.

"These objective facts are to us incomprehensible as yet. Nevertheless, I shall not be surprised if, at some future time, it is conclusively proven that the plaque refers to solstices and equinoxes rather than to months. At a guess, I would say that Tello's A and B figures refer to those recurrent phenomena, and that his C and D figures have some lunar significance."

After pondering these words and studying the plaque for a considerable period, the idea of proceeding to the left instead of to the right occurred to the writer. Immediately a simple, reasonable and altogether new interpretation, which won the approval of Dr. Saville, suggested itself:

FIRST: The plaque should be read sinistrally instead of dextrally. It will be recalled that the Aztec calendar circle is also properly read counter-clockwise⁶.

SECOND: Reading in this direction and starting, for instance, at D, the border symbols immediately take on a pictorial value suggestive of a crescent moon, *i. e.* its first quarter. This should increase during second quarter to the appearance of a full moon at C, where is found depicted a small face with —bearing in mind a counter-clockwise progression—a diamond-shaped object seemingly entering its ear. Then at H, third quarter, when the moon should begin to wane, the diamond seems to be leaving the opposite side of the small face. At G, fourth quarter,

the moon appears gibbous while the face associated with it is tipped almost upside down. At D another crescent appears, and the series is repeated providing two lunar months, or from 56 to 60 days (or nights), for the calendrical value of the entire border.

THIRD: Eight of the border symbols are identified as numerical, those labeled E and B by Saville, and similarly designated on the accompanying plate. They are precisely those symbols which appear *four* times instead of twice.

FOURTH: These numerical glyphs are, it is believed, the first ever noted from South America. Although there were legends that prior to the introduction of the knotted cord *quipu*, by which Inca records were kept, there had anciently been graphic recordings⁷ on rocks and on a parchment⁸ made from plantain leaves (a member of the banana family), no deciphered corroboration has hitherto been found.

FIFTH: The system of numeration in the eight glyphs corresponds roughly to that of the Maya of Yucatan.

A detailed account of the exceptional history of this breastplate is given by Saville in his monograph published in 1921 by the Museum of the American Indian, Heye Foundation. For some years after the death of General Echenique the breastplate could

not be located by his heirs, and it was feared that it had been lost to the scientific world. But such was not the case. It was safely reposing in a private collection abroad, from which it was purchased in 1912 by Mr. George G. Heye. Saville points out that such breastplates are rarer in Peru than in Ecuador, and that they have also been found in Mexico, Costa Rica and Panama. He regards the Echenique breastplate as very ancient, assigning it to a pre-Inca period. This being so, a definite echo, or perhaps precursor, of the Maya counting system in Peru at so early a date may become an historical item of some importance.

For closer consideration, the border of the breastplate may be divided into four sectors: The upper left to be regarded as a waning moon; lower left, as a waxing moon; lower right, a waning moon; upper right, a waxing moon. In general the right half of the border repeats the left half, with but three exceptions. In all the pictorial glyphs, keeping a counter-clockwise progression in mind, it will be noted that the units comprising each symbol occur in the same sequence except in F where the sequence is reversed. Possibly the F units contain elements that must conform to the same perpendicular as that of the central face. Other exceptions will be noted in that upper left G has two tiny dots while lower right G has three, and that lower left D has three

tiny dots while upper right D has four. Perhaps these distinguish particular moons. In any event they bear out a counter-clockwise motion.

Now, if it is correct to suggest that sectors CD and GH portray pictorially the waxing and waning moon, respectively, we should expect at A some intimation of the brilliant sun-like appearance of the full moon, and at F some suggestion of the disappearance of the new moon. These are actually found.

Examining each design in detail, a pointed figure somewhat resembling a serpent head, simulating the later A-shaped Aztec design associated with the sun, is observed at A. This symbol might not improperly suggest the full moon. Glyph E, at the left, carries a tongue, a symbol also associated with the sun and with life. Beneath the tongue is a bar. This bar, by Mayan analogy, may indicate the numeral 5. The character H with a small face slightly tipped, although still perpendicular with reference to the radial axis, and with the diamond shaped object leaving the right side of the small face, may be regarded as the incipient waning of the moon. Symbol G appears to be a picture of the third-quarter, gibbous moon, and the little face associated with it is tipped until at right angles to the radial axis, a position which in many other instances of ancient indigenous art implies serious illness or impending

death, and which may in this case typify the fading away of the waning moon during its last quarter.

Character **B** with the bar and two large dots might indicate 5 plus 2 or a total of 7. Symbol **F** is interpreted as the period of the new moon, a period when the moon is so closely in line with the sun that for several days we cannot see it. It will be noted that the positions of the **F** figures are placed directly at the ear locations, as these organs are related to the main central face, outlined by the ladder-like notches at the edges of **G** and **D**, and the inner borders of **BFE**. It would seem that in this single glyph the ancient artist proves himself a master craftsman who conveys with amazing deftness and poetry the simple picture of what actually appears to him to occur in the heavens, the drifting of the moon into the sun's ear and being lost in, or immersed by, the sun until it emerges again from the opposite side of the solar disc. In symbol **D** the young crescent moon emerges, with her bright side turned, as it should be, toward, and with the two horns away from, the sun. The egg-shaped figure above the crescent, in this symbol, may well portray the "earth light", usually conspicuous upon the dark portion of the moon's disc when the crescent is very young. Design **C** with the diamond entering the small face, represents the second quarter. Glyph **B** completes the series, from which point it is repeated

on the other half of the disc. The diamond figures below the small faces in C and H, directed radially toward the large central face of the plaque, may serve to express full lunar brightness. They seem to present no other significance as to the progressive changes in the moon.

If the supposition is correct that the border figures represent two lunar months of 28 to 30 days each, and if numerical symbols are employed, we should expect to find 28 units at least indicated on each half of the plaque. If the value of 5 is correct for E and the value of 7 correct for B, 24 units appear on each half of the border, but we still require 4 more units for each lunar month. These present themselves conspicuously on the brow of the central face, four to the left of the medial trident and four to the right, placed just where they should be to bear out the deduction that the breastplate definitely indicates a 2-month period.

The tallying of a cycle of two months was not uncommon in ancient America. Even today the Seminole Indians⁹ isolated in the Florida everglades, recount the big wind moon and the little wind moon, the big mulberry moon and the little mulberry moon; while similar bi-monthly groupings occurred in the Muscogee calendar, the Aztec calendar, and among certain Pueblo groups. Also the bi-monthly idea is borne out by the two small faces, one under

each eye of the large solar face, which could very properly designate or summarize the two lunar months figured in detail in the border.

A further and striking corroboration of our reading of the border symbols as a 60-day period, from full moon to full moon to full moon, is found in Bollaert's description of the Muisca (Chibcha) calendar. Says Bollaert²:

" . . . they commenced the month from the full-moon in the sign of Ubchihica, which signified brilliant moon: counting seven days on the fingers, beginning at Ata [1], which follows Ubchihica, they found the quadrature in Cuhupcua [7]; counting from this, seven, they found the next immersion of the moon in Muyhica [4], which meant anything black; and the following day, the conjunction symbolized in Hisca [5], which, in their idea, was the union of the moon with the sun, represented the nuptials of these planets . . . : then counting eight days [beginning at Ta, 6] they found the other quadrature in Mica [3], which meant a changing object, thus denoting the continual variation of its phases."

It is obvious that if a further count of seven is made the full moon is again found at Ubchihica, 10, and the cycle is completed.

Also corroborative is the specific statement by Garcilasso¹⁰ that in the Inca calendar "weeks were reckoned by the quarter moon", which, of course, is a seven day period. And it is also worthy of note

that Nordenskiöld¹¹, in his recent analyses of what appear to be astronomical *quipu* records, finds the numeral 7 recurring with curious insistence.

It should here be noted that while the sidereal lunar month is a shade less than 28 days in length, the synodic or apparent month, from new moon to new moon, is a variable period averaging $29\frac{1}{2}$ days in length but differing by as much as thirteen hours. If the eight large dots on the forehead taken together with glyphs B and E closely evaluate the sidereal month (the time required for the moon to make a circuit of the heavens from a fixed star to the same star again), a modification for the apparent or synodic month of 29 to 30 days may possibly be provided for on the breastplate by the two additional large dots on each half of the central face, one at the lower inner edge of the ear, and another at the lower edge of the nose.

This question now presents itself: How is the lunar period of 60 days to be checked off, if the breastplate is to serve, in accordance with tradition, as a yearly calendar?

Curiously enough a possible answer is found in the set of seven teeth-like projections directed upward just below the mouth of the central face. If traveling up and then down the first "tooth" at the right should represent the time elapsing during the two months covered by one 60-day circuit of the

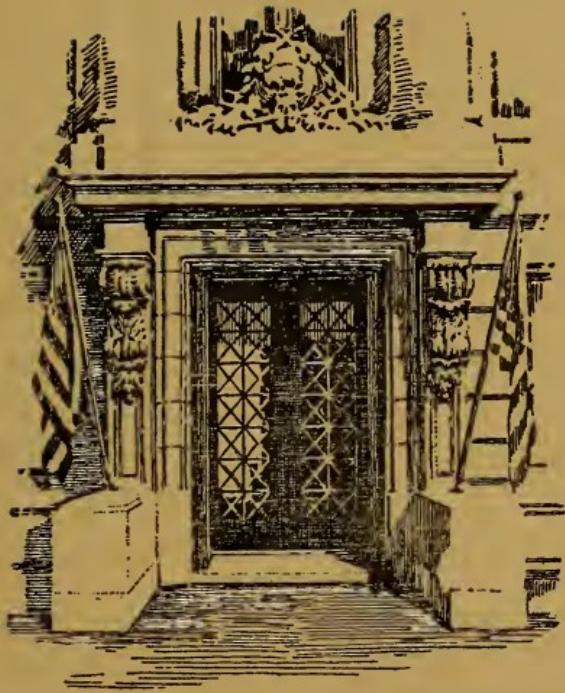
border, then the six larger projections would take care of six circuits, covering twelve lunar months or approximately 360 days in all, and the smaller seventh could be checked against the 5-day balance.

After careful consideration of all comments to date concerning this extraordinary relic from Cuzco, it is suggested, in summary: (1) That the border should be read counter-clockwise; (2) that the border symbols represent two lunar months carefully calculated; (3) that the plaque contains eight numerical glyphs—the designs labeled *B* and *E* by Saville; (4) that they are the first numerical glyphs reported from South America; (5) that these glyphs, in a style suggesting that of the Maya, indicate five units by means of a bar, single units by dots; and (6) that possibly the lower supernumerary teeth serve as a calendrical check-off for each 60-day, or bi-monthly, circuit of the border.

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THE JICAQUE (TORRUPAN) INDIANS OF HONDURAS

BY

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1943

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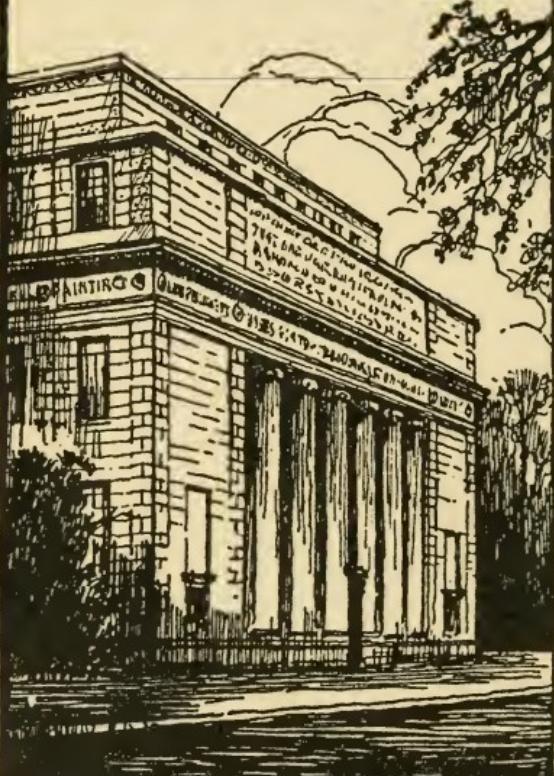
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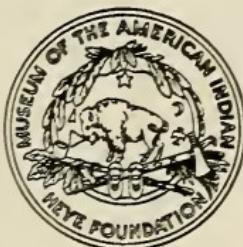


GENERAL VIEW OF MONTAÑA DE LA FLOR SHOWING UPPER FORESTS
COVERED WITH CLOUD BANKS

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THE JICAQUE (TORRUPAN) INDIANS OF HONDURAS

BY

V. WOLFGANG VON HAGEN

THE last remnant of the Jicaque (Torrupan) Indians, who once inhabited a quarter of the area of the Republic of Honduras, are now found in a small region known as Montaña de la Flor situated in contiguous areas of the Departments of Tegucigalpa, Olancho and Yoro, between 14° and 15° North latitude on the 87th parallel.

While there are at present numerous completely Hispanicized Jicaques living in the Department of Yoro occupying territory extending northward to the Sierra de Omoa close to the Guatemalan border, as far as is known at this time the group with which this study deals are the last and only unit of the tribe to retain its ancient culture more or less intact.

That the name Jicaque was a general designation in the seventeenth century for all the Indians of Honduras, the Sumu, Paya, and Torrupan being included, is quite evident.¹ Fr. Cristóval Martínez Puerta,² who ascended the Rio Plántain and went among the Paya Indians in that century, referred to them as "Xicaques," and Padre Estavan Verdelete,

who met the tribes living near the Upper Patuca or the Guayape River in Olancho from 1609 to 1611 similarly designated them³ although, actually, they were not Jicaques, but Twahakas, a sub-tribe of the Sumu.⁴

As a result of this confusion specific literature concerning the original inhabitants of the north coast of Honduras from Guatemala to the Rio Plántain is practically non-existent. This lack creates an immense hiatus in the ethnology of Central American tribes, and makes it extremely difficult to establish many details concerning the ancient culture of the Jicaque proper, who call themselves Torrupan.

The expedition to Honduras in 1937-1938 under the auspices of the Museum of the American Indian, Heye Foundation, contemplated an ethnological and zoological survey of that country, among the Sumu, Paya, Miskito, and Torrupan groups. The present monograph is a report of four months' investigation among the Hispanicized Jicaques of Yoro, and two among the primitive Jicaques in the Montaña de la Flor. In addition to the ethnological collections made and to the series of live-masks procured, all of which are deposited in the Museum of the American Indian, Heye Foundation, an exhaustive ethno-botanical collection made by Christine Inez von Hagen forms a comprehensive basis for the study of the material culture of the Jicaque (Torrupan).

HYDROGRAPHY

The Montaña de la Flor, situated at an altitude of 4,000 feet, has but one large river, the Guarabuqui, on either side of which the palisaded villages of the Jicaques are located. This swift-flowing stream, seldom exceeding fifty feet in width in its normal stage, empties into the Guayape, one of the tributaries of the largest river of Honduras, the Patuca, which, in turn, finds its outlet at Brewers Lagoon on the Mosquito coast. All of the remaining rivers in the vicinity are really no more than small streams, although they do rise threateningly during the rainy season. A curious division of drainage occurs in the Montaña de la Flor. The Guarabuqui makes a complete circuit around the eminence before it reaches the Rio Guayape to the east, while another stream, arising there, flows west to form the Rio Sulaco, a tributary of the Ulua.

The Rio Guarabuqui, not navigable even for canoes, descends the Montaña in a series of cascades, dropping a thousand feet in five kilometers, to enter the relatively flat plains of Olancho. The whole of the region is subject to sporadic subterranean rumblings but these, at least in the interior, seldom reach the point of actual surface eruption. There are no records, since the conquest at least, of any active volcanoes in Honduras although there have been numerous eruptions among those of the bordering countries of Guatemala, El Salvador and Nicaragua.

in both colonial and recent times. As an indication of earlier disturbances in Honduras, however, there are at San Ignacio, sixteen kilometers from the Montaña de la Flor, five acres covered with boiling sulphur springs. Cattle come to drink the water and occasionally the *ladinos** visit here for cures of various maladies. Although the Jicaque know of these springs, they never use them for therapeutic purposes as do the Sumus of the Rio Patuca at similar spas in their neighborhood.

CLIMATE

The seasonal cycle in the mountain areas of Honduras above 4,500 feet is fairly constant. October and November are unpleasant months of squalls (*chubascos* or *nortés*) which bring high winds and much rain. These storms cease in December or January when the temperature becomes cool, ranging from 45° F. at night to a high of 70° during the day.⁵ Little rain falls during these months. February, March, April are the bright, sunny, springlike months with rain about every third day. May, June, July constitute the rainy season, although in the central

* *Ladino*. In early Spanish, one who speaks a foreign language in addition to his own. The term was given to Indians who spoke Spanish and also acquired the customs of the conquering race. Today the Indians of these countries who speak Spanish and who do not wear the native costumes nor preserve native customs are called *ladinos*. *Ladino* in Honduras is synonymous with the *mestizo* of Mexico, and the *cholo* of Ecuador and Peru.

montaña this period is not clearly defined. There, contrary to expectations, the amount of precipitation is not much over 80–90 inches a year. August and September are the rainless, dry months, during which the *ladinos* and the Indians fell trees to clear space for their gardens.

FLORA

The tropical zone, or *tierra caliente*, extends from sea level to about 1,500 feet. Along the Caribbean, on the shores of the Mosquito coast, and inland in the so-called ocotal-robledals,* pine, which because Honduras is generally mountainous constitutes over 75 per cent of the forest growth, is found intermittantly at altitudes as low as two hundred feet. On the Pacific coast bordering the Gulf of Fonseca where the mountains rise abruptly, the humid zone is restricted and more clearly defined. Here the pine and oak regions begin immediately back of the flat swamp-plains of the Fonsecan estuaries and are more or less continuous throughout the country. The flora of this tropical zone include rubber (*Castilla elastica*), cecropia (*Asperrima* sp.), balsa (*Ochroma* sp.), chicle or zapote (*Achras chicle*), ceiba (*Ceiba pentandra*), cedar (*Podocarpus coriaceus* RICH.), mahogany (*Swietenia macrophylla*), and Santa Maria trees (*Calophyllum calaba* JACQ.).

* Stream beds and gully bottoms containing a fertile deposit of humus washed down from the higher pine and oak regions.

The temperate zone, dominated by pine (*Pinus oocarpa*) and various oaks (*Quercus segoviensis*; *comayaguana*; and *oleoides*), is located at altitudes from 1,500 to 5,000 feet. An admixture of hardwoods occurs in the lower reaches, but practically pure stands of pine are found as the higher slopes and elevations are reached. At the heads of the draws in the gully bottoms of the ocotal-robledals, patches of hardwoods and humid-tropical plants are found growing to the virtual exclusion of pine. Here the wild fig (*Ficus involuta*; *radula*; and *glabrata*), various guavas (*Inga edulis*), aguacatillos (*Nectandra globosa*), zapote (*Calocarpum mammosm*), varieties of wild grapes or uvas (*Ardisia compressa* HBK) and river reeds (*Arthostylidium racemiflorum* STEUD.), which latter furnish the Indians material for their baskets, grow profusely.

Above the 5,000 foot limit of the pine regions, the mountains are swathed continuously in great masses of clouds, fog-bathed during the rainy season, the upper reaches of the interior highlands are constantly adrip with almost ceaseless, chill rains. The flora here is dense, the trees growing to huge size. The giant oaks (*Quercus segoviensis*) and liquid-ambars (*Liquidambar styraciflua*) are immense and most of them are festooned with creepers, the protecting branches being draped with parasitic epiphytes or covered with immense folds of a grey moss-like *tillandsia* (pl. II, upper). Tree and ground ferns, vines of varying thicknesses, and sars-

parilla, which once commanded a good export market, grow profusely and add to the general floral profusion of the area. Such is a typical picture of the Montaña de la Flor, the present home of the primitive Jicaque (Torrupan). With their villages in the dry ocotal-robledals and their gardens in the humid forests, the whole group economy is geared to the vegetal life produced in these climatic environments.

FAUNA OF CENTRAL HONDURAS

The fauna of the Montaña is typical of any similar region of Central America and, as the population of Honduras is less dense than in most countries—twenty-one to the square mile, its animal life is comparatively rich. The deer, a most important food item among the Indians, is found both in the pine-oak region and in the cloud forest, the small red variety being especially esteemed by the natives. Two species of wild pig, the collared and the white lipped peccary, along with the tapir are the most ubiquitous game animals in both ecological zones. In the tree tops the howling monkey, the spider monkey, and the white faced capuchin are hunted, while below, the agouti and paca supply the Jicaque, as they do the other groups of tropical America, with additional flesh food.

Birds are abundant, the curassow, several varieties of pigeons, and the tinamou (*Crypturus* sp.), being

avidly hunted for their flesh. The birds of the cloud forest are of greatest interest, probably less being known about them than those of any other region in Central America. The beautiful quetzal (*Pharomachrus mocinno*), the first examples of which to be captured alive were brought back by the expedition,⁶ is found here, as are the toucan, trogon, and large parrot. The quail, woodhewer, thrush, motmot, hilguero and humming bird are exclusively confined to these gloomy, mysterious cloud-wrapped areas.

THE JICAQUE INDIANS

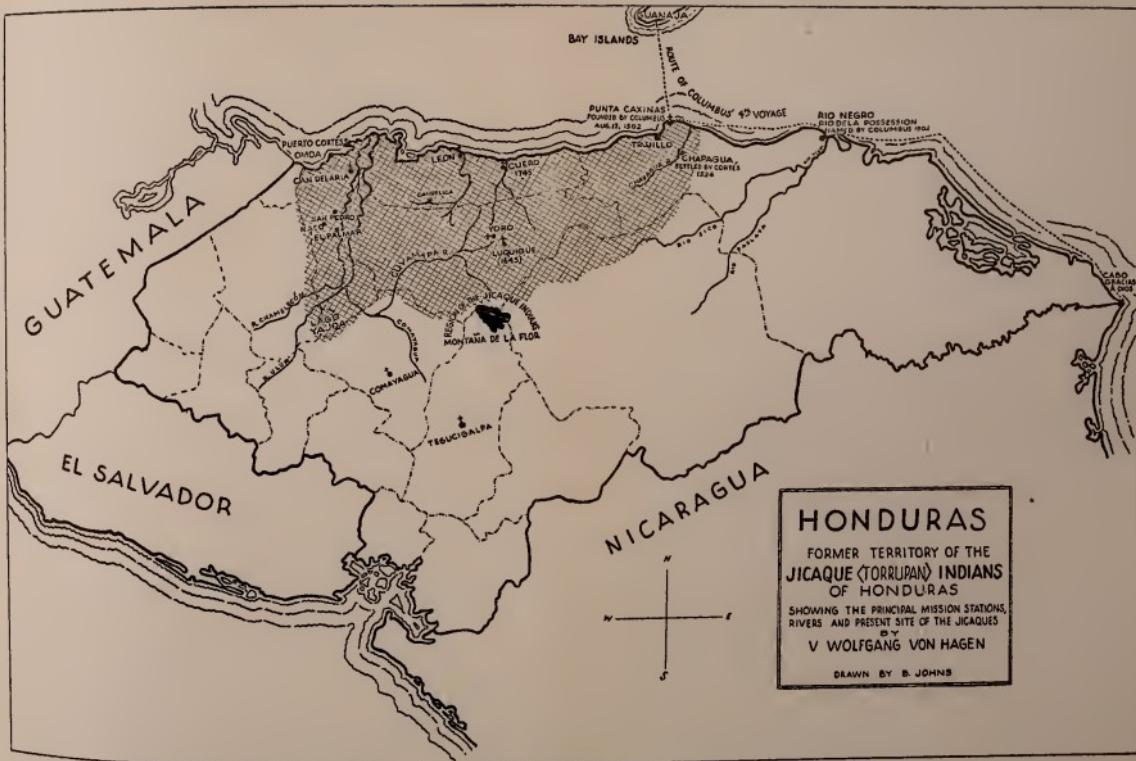
On top of the Montaña de la Flor at 4,000 feet altitude, the Jicaque (Torrupan) have enclosed an area roughly a mile square with a seven foot stockade of split oak behind which their dwellings have been erected (pl. II, lower). Actually there are two villages separated by the Rio Guarabuqui, their respective stockades ending on opposite banks of that stream. One community is dominated by an elder, Beltrán, who migrated to the present site with his father and mother in 1865. The other group has as its leader the son of the other Indian, Juan, who accompanied Beltrán's parents some seventy-five years ago. Beltrán, now over eighty, is the only survivor of this trek. All the other Jicaques were born in the present locality and, other than what their elders have imparted to them, know nothing of the former habitation of their people.

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CROSS-HATCHING SHOWS PROBABLE AREA OF EARLY JICAQUE OCCUPANCY

Close inbreeding must have prevailed, and the effects of sister-brother and cousin-cousin mating for four generations is already to be noted in the stature and mental capacity of some of the group. The beginnings of this refugee colony of Jicaques are among the most curious in the annals of the Central American Indian, and before they can be entirely clarified much of the uncertainty concerning the earlier distribution of the tribes of that area must be overcome.

ENVIRONMENTAL AND HISTORICAL BACKGROUND

According to the original compilations of Thomas and Swanton,⁷ recently further detailed by Johnson,⁸ the Caribbean, or north, coast of Honduras, was dominated in pre-Columbian times by three tribes: Paya, Sumu, and Jicaque. In this era the Miskito nation is not to be associated with its present coastal habitat, as it is a hybrid group developed about 1640 from the miscegenation of the Kukra-Sumus and a contingent of negro slaves.⁹ However, in later years the Miskitos had a marked influence on their neighbors which greatly altered the traditional borders of the indigenous tribes of Honduras and Nicaragua.

The Paya—although too narrowly restricted by Thomas and Swanton—occupied territory from the Caratasca Lagoon, on the east, westward to the Sierra de Esperanza, a range of mountains near Trujillo. The Paya were bordered on the south by

the Sumu who also occupied a narrow strip of the Caribbean coast including Cape Gracias á Dios. Various Sumu sub-tribes, Twahaka, Ulwa, Panamanka, Bawihka and Kukra were widely diffused into the central portions of both Nicaragua and Honduras.¹⁰

Adjoining the Paya, extending, probably, from Rio Aguán (or Roman) along the whole of the coastal territory westward to the Sierra de Omoa, were the Torrupan, more latterly designated Jicaque. Colonial records and missionary reports establish their territory as extending inland to that of the Lencas, including all the present Department of Yoro to the upper reaches of the Rio Comayagua. To the westward, the Jicaque, with the Nahuatlán Pipil and scattered Mayan groups (Toquegua), peopled the fertile Ulua valley; the Pipil villages of Naco and Quismistan actually bordering on certain Jicaque settlements in the Sierra de Omoa.

The Jicaque territory, then, at the coming of Columbus in 1502 was bounded on the east by that of the Paya, who speak a related language; on the west by the Maya and Pipil; on the south by the Lenca, who occupied much of the central portion of Honduras, and for a short distance on the southeast, by the Sumu.

From the Bay Islands, which he discovered on July 30, 1502, Columbus sailed to the mainland of Honduras with three native guides, one of whom is specifically named Jumbe by the admiral's son,

Fernando. The party reached Punta Caxinas Bay (now Trujillo) on August 14, and took formal possession on the 17th. There, for the first time, Columbus came in actual contact with the indigines of the mainland. According to Fernando, these natives were quite similar to those found on Guanaja and dressed in like manner, wearing a tunic, a sort of jacket without sleeves, which more or less describes the present garment of the Jicaque. They also used cotton armor, much like the cotton jackets of the Mexicans, sufficiently strong, so observes Fernando, to resist the strokes of the Spanish swords. Nothing, however, of the character of the Indian is reported.

Columbus then continued two degrees eastward to the mouth of a large river in which he anchored. This stream, to which he gave the name Rio de la Posesión, is now called Rio Negro or Tinto. Fernando noted that the Indians here (*i.e.*, the Paya Indians at Rio Negro and eastward toward the Caratasca Lagoon) had not the great forehead height of the Islanders, it being obvious that the frontal areas had been artificially flattened. These natives spoke "several languages," tattooed themselves in various ways and had, moreover, "great holes in the lobes of their ears through which an egg might pass." Hence, this coast was named La Costa de la Oreja, and the Indians, Orejones.

As the explorers progressed toward Cape Gracias á Dios, their Bay Island interpreter found it increasingly difficult to carry on a conversation with

the Indians until, at last, having reached the Cape after a passage made difficult by the October squalls, he was dismissed and sent back to the island of Guanaja. Columbus had reached the end of the Paya territory and had entered the area of the Kukra-Sumu.

Much controversy has arisen as to what linguistic group inhabited the Bay Islands at the time of the coming of Columbus. Conzemius¹¹ argues that since the islands were opposite Jicaque territory, the insular people spoke that language. Lehmann,¹² however, insists, because Spanish missionaries in 1622 took Bay Islanders from Roatan to interpret among the Paya Indians, that they must have been Paya in speech. That the controversy is long and involved is discussed by Strong¹³ in his recent work on the archeology of the Islands. Whatever the ultimate decision, which will be arrived at by deductive reasoning, perhaps, rather than from factual proof, it will be shown in this study that the Jicaque had contact with the insular inhabitants, traded with them and understood their speech.

Lehmann¹⁴ makes a broad grouping of the Sumu and Miskito as close linguistic affiliates of the Talamancan subdivision of the Chibchan stock, with the Paya, Lenca and Jicaque being classed as more remote members. This grouping seems to be sound even though not universally accepted. Conzemius¹⁵ demonstrates at considerable length the close resemblances between the ethnology of the South

American tribes and those of the Caribbean coast of Honduras and Nicaragua, and Spinden¹⁶ insists very strongly that these coastal tribes (Sumu, Paya, Jicaque) are intruders into Central America. He says:

"Indeed all these tribes appear to have been intruders into Central America from some forested portion of South America as is evidenced by their material arts and social institutions. They are fine canoe men, expert hunters and fishers, but poor farmers. Their marriage is of the inbreeding South American type with the cross-cousin as the normal mate. Their ceremonies involve drunkenness in which beers made from various starchy materials are consumed in great quantity. Fermentation is hastened by premastication of bananas, manioc roots, etc., after the South American fashion."

Accumulating evidence, historical, ethnological and archeological, partly explains the presence on the Caribbean coast of tribes with South American affiliations, and it is now possible to trace population shifts, beginning with Mayan cataclysm and the abandonment of Copan, up to the fourteenth century when Uto-aztecan stocks moved south on the Pacific side of Central America to an accompanied northward thrust on the Caribbean coast by tribes stemming from the Talamancan subdivision of Chibchan stock—which would include the Sumu, the hybrid Miskito and the isolated Chibchan-speaking groups,

the Paya, the Lenca and the Jicaque. That the Jicaque do not definitely belong to the maize culture group of Central America is evident in their food. A late eighteenth century vocabulary,¹⁷ although explicit in all else, had no word for tortilla or corn; and the Jicaque, after centuries of contact with that form of food, today prepare it badly and use only a crude tortilla.

The mainland of Honduras was not settled until 1509, seven years after the fourth voyage of Columbus. Encouraged by Ferdinand and Isabella, Alonzo de Ojeda and later, Diego de Nicouessa, formed two settlements along the coast between Darien and Cape Gracias á Dios. In 1524 Cristóval de Olid, an officer under Hernán Cortés, was dispatched to plant a colony in Central America. This he established at the Pipil settlement of Naco, within a Nahuatl colony near the present city of San Pedro Sula, isolated in a sea of Maya-speaking peoples. It was here that Olid, becoming overly impressed with his own power, decided to revolt from the jurisdiction of Cortés.

Cortés, hearing of Olid's plan in good time, dispatched Francisco de las Casas by sea while he later proceeded to the scene of insurrection by his famed march from Mexico to Honduras. Upon his arrival, finding that the loyal las Casas had already beheaded Olid, Cortés continued by means of brigantines to the Spanish colony at Trujillo where fortifications were in progress and labor needed. Bernal Diaz de Cas-

tillo relates that the name of Cortés became so feared and respected among all the inhabitants of Honduras that even the distant tribes of Olanchito, in the Department of Yoro, sent embassies to declare themselves vassals of the emperor. These remote natives were undoubtedly Jicaques.

Once established at Trujillo, Cortés sent out messengers to inform all the native caciques to appear before him. It is related that they knew of his previous conquests to the north and, therefore, addressed him by the Mexican designation "Capitán Malinche." Doña Marina acted as interpreter* during the main conferences with these natives who came from what is accepted as the traditional Jicaque territory. Later the padres accompanying Cortés explained the *doctrina Cristiana* to them through the medium of Nahuatl Indian converts whose language, it is apparent, they understood. Since the Jicaque bordered on the territory of the Nahuatl, Pipil may have been used as a *lingua franca* along the coast, certainly as far as the great Caratasca Lagoon and perhaps to Cape Gracias á Dios, where, it is to be recalled, Jumbe, Columbus' Bay Island interpreter,

* To explain this fact Johnson (see bibliog. ref. 8) hypothesizes an isolated group of Nahuatlean Pipils along the Rio Aguán on the traditional Paya and Jicaque boundary not far from Trujillo. This, if true, would explain how Doña Marina could act as interpreter during the conferences with these Indians. Those who hold that Maya was the *lingua franca* along this coast might, with equal soundness, claim that she spoke Maya to them.

had reached the absolute limit of his understanding of the coastal languages.

After the submission of the caciques to Cortés, he asked that an Indian village be built near the site of Trujillo, and that an embassy be sent to the Island of Guanaja to instruct the inhabitants there to bring food to the colonists at Trujillo. Upon the return of the canoes, one bore a delegation of Bay Island natives who came to solicit aid from Cortés against the slave-making raids of the Spaniards in Cuba. From this, then, it is apparent either that the Indians of the Bay Islands and those of the coast of Trujillo spoke the same language or that both employed a *lingua franca*, and, moreover, that these peoples were on good terms.

Because of the delicate political position in which Cortés found himself in Honduras and of threatened movements from Cuba he made no attempt to carry his explorations inland, but he was informed, we learn from his correspondence,¹⁸ that through the few encounters the colonists had had with the inland peoples while seeking food, that these natives ". . . were better disposed than others for peace; for although they had no interpreter to converse with them, they had shown by signs their good will and friendship." Cortés continues, "No doubt that if these people were spoken to by a person who knew their language, they might be easily reduced, although they had on several occasions been ill-used. . . ."

Cortés did, however, visit two communities, Chapagua or Talchinalchapa (also spelled Chompagua and Chaoagua) which is still extant, and Papayeca.* Bernal Diaz specifically identifies the cacique of Chapagua as Quespan. *Pan*, incidentally, is met with frequently in the Jicaque language both as a word and as a suffix; it means "fat." Between Quespan and another chieftain, Mazatl, there arose some dissension through which attacks were made on the colonists forcing Cortés' troops to war upon and capture Mazatl. His execution seemed to have had a salutary effect on the natives for thereafter, as far as the formal records are concerned, no concerted

* Lehmann believes these villages are to be ascribed not to the Jicaques, but to the Payas—"that is, if the original inhabitants of the Bay Islands belong to the Paya Indians"—but that they could not have been Nahuatl. Conzemius, on the contrary, says definitely that these villages were not Paya since their traditions and legends insist that the Paya territory never extended northeast of the Rio Aguán, beyond which the villages of Chapagua and Papayeca were found. He further states that the Indians of these villages "were probably Mexican since Cortés conversed with the messengers of these towns in the idiom of Culua (Mexico)." In the opinion of the present author, this is a misinterpretation of the literature of that encounter, as the interpreters had obviously considerable difficulty in explaining much of the *doctrina Cristiana*. Conzemius mentions that one of the leaders was called Mazatl, which is "deer" in Nahuatl, suggesting that it too is the word for deer in Jicaque. This, again, is in error, since the term is *pus*. There is much confusion, therefore, as to what tribes the villages mentioned by Cortés and Bernal Diaz belonged.

movement against the encroaching Spaniards ever developed.

After the departure of Cortés for Mexico, the governorship of the colony was assumed by Diego López de Salcedo in 1525. Herrera¹⁹ informs us that upon his appointment Salcedo applied himself to ascertain the native religious customs and the mental capacities of the inhabitants of the province, and that he found three principal idols worshipped in the vicinity of Trujillo, in a temple on an island distant some 15 leagues from the city. All the idols had human female form, and were made of a variety of green stone resembling marble. The high priests who officiated at this temple wore their hair long and could not marry. Ranging in distance from 4 to 20 leagues from Trujillo were other places of worship where sacrifices were made to different idols. Salcedo states that these people were not so "polite" as the Mexicans and that they differed little from the people of Hispanola.

These notations are here included because they constitute the only direct contemporary observations. Admittedly, they do little to clarify the linguistic and ethnological maze, although of a certainty, the island 15 leagues from Trujillo, on which a temple was found, must have belonged to the civilization of the Bay Islands, as the Jicaques certainly did not fashion idols of stone, nor had they achieved the high religious plane marked by sacerdotal celibacy.

Salcedo, deciding to move toward the interior for the complete conquest of Honduras, forcibly gathered the natives of Yoro to act as carriers. Oppressive measures continued throughout the march to the interior, and the Indians adopted a scorched-earth policy of defense. So completely were sources of food destroyed that by the time the Spaniards reached Comayagua, they were facing virtual starvation.

In early colonial times the city of Trujillo became the principal outlet for produce from all of Honduras and soon developed into the center of its commerce. Pope Pius II declared its church a cathedral in 1539, and the same year a fort mounting seventeen guns was completed. Completely subjugated, the Jicaques retired more and more to the interior, undoubtedly being called upon continuously for forced labor or to take sides in the civil disorders that flared up within the country during the next hundred years. Although many of the outstanding Spanish chroniclers, Andagoya, García, Palacios, and Motolinía, visited Honduras, none mentions any of the cruder Caribbean tribes, nor is the name Jicaque found among the writings of Gómara, Herrera and Torquemada.

By the end of the seventeenth century Guatemala had become not only the fountain-head of political power in Central America, but the center of ecclesiastical activities, as well. With the power of the Aztecs and Mayas broken and the natives in the main converted, the padres turned their attention to the

ruder tribes of Honduras. It is at this time that the term Jicaque first comes into prominent use.

An expedition known as the Jicaque Mission was undertaken in 1609 by Frs. Estavan Verdelete and Juan de Monteagudo. As a previous expedition had failed because of inadequate military support, this one was augmented by twenty-five soldiers under the military leadership of Captain Alfonso de Daza. It proceeded toward the Jicaque territory, but upon the Guayape river, where the party was actually among the Paya and not the Jicaque, it was set upon by the natives and massacred. This martyrdom of Verdelete and his followers stimulated the holy men in Guatemala to carry out the conversion of the Jicaques. The crusade was poorly inaugurated by Espino, who pontifically declares:²⁰

“Declaracion, para que no ayga confusion. El P. P. Fr. Estevan Berdelete y su companero Fr. Ioan de Monteagudo, fueron muertos por los indios Xicaques, por la fe de Iesu Christo, en le rio de Guayape, rio caudaloso por juntarse con el rio de Guayambre; está abaxo del valle de Olancho, adonde yo estube” (p. 368).

Espino, who bore the impressive title of “Predicador Custodio habitual desta Santa Provincia del Santissimo Nombre de Ieses de Guatemala, y Comissario Apostolico de la Reduccion de los Indios Xicaques de la Taguisgalpa,” was born in Nicaragua. In this region Matagalpa was spoken, and he under-

stood both this and the Lenca tongues. It is indeed unfortunate that the "arte y libros formados en aguel idioma barbaro," which he says he prepared, and the grammar and *doctrina Cristiana* he admits to have written in their vernacular, are either lost or buried in the mass of unsorted manuscripts in Guatemala.

Espino's statement that the Indians lived on the Rio Guayambre, between the 14th and 15th parallels on the 86th, should be noted here with some emphasis. This stream could not have been the Guayambre, but rather the Guayape or the Upper Patuca and is thus in Paya, not Jicaque, territory. He further states that the natives were at war with the "indios caribes llamados Taguacas" (Twahakas, a sub-tribe of the Sumu) living then, as now, on the Patuca at its conjunction with the Rio Wampu. Lehmann's conclusion that the term Jicaque * had the meaning of wild-barbarian, and was applied alike to Lenca, Torrupan, Sumu and Paya, seems to warrant general acceptance.

It would seem that the use of the name Jicaque was restricted to apply specifically to the Torrupan people between 1695 and 1698 when Padre Melchor

* Writing more recently, Doris Stone in her chapter on The Ulua Valley and Lake Yojoa (The Maya and their neighbors, p. 389) quotes Vásquez and Molina in believing Jicaque to be a corruption of the Nahuatl *chicatic* meaning "former or older inhabitants," and considers the term used through the early history of Honduras to designate warrior-pagans.

Lopez labored in their territory and instituted the mission station of Luquigue located near the municipality of Yorito, five miles southwest of Yoro.²¹

From this permanent mission station various Franciscan fathers spread their influence into the territory of the Jicaques of Yoro. Sometime after the year 1720, Fr. Josef Fernandez succeeded in establishing two centralized villages in the environs of the Ulua Valley. The first, San Josef de Guina, was located on the Rio Guaymas, a small tributary of the Ulua arising in the heights of Sierra Nombre de Dios; the second, Nuestra Señora de Candelaria, was a more important settlement located midway between San Pedro Sula and Omoa at the junction of the Chaloma and Chamelecón rivers (see map). Upon the death of the padre who lived to be ninety-eight, the village of San Josef de Guina became disorganized and the inhabitants whom he had catechised so industriously forgot his teachings.

That the Jicaque town of Candelaria existed for a considerable period after its founding is established by reference to a royal decree approving the measures taken by the President of Guatemala on his trip to the fortress of Omoa in 1770.

Although San Pedro is only twenty leagues from this fortification, the decree states that there is not a single farm or village "within that great burdensome distance with the exception of the settlement called Candelaria, consisting of seventeen huts. The Council, thus approves the idea of settling twenty-

five families from Tencoa and Gracias near to the settlement of Candelaria, for it contains such a limited number of Indians that for the Royal Service it was decided to promote the increase of population.”²²

As further evidence that the community was still in existence nearly a half century later, it is felt that a considerable quotation from Cockburn’s “Narrative”²³ be interpolated at this point:

“Soon as the day broke, we began to ascend a high Mountain from whence we saw a great Gulf, called Gulf Dulce in the North Sea. Here we met with an Indian Man and Boy, which they call Lookouts, their Business being to spy the Motions of other Indians, whom their own People are at War with. Shortly after, we met with another Indian Man and Boy running with great Swiftness, these belonged to Henricus Johnson, and Pedro Polias, who keep them to run on Errands to the Spanish Governors, with whom they hold Intelligence. They told us, they had been with a Present to the Governor of Comayagua, and were returning to their Masters. This Evening we came to Candiliero, where the Inhabitants of the Place (being all Indians) flocked about us, as in Amazement, and brought us before their King, who was sitting on a Carpet, spread on the Ground, in great State after his Manner. He was surrounded by his Guards, holding Spears in their Hands, a great many. He demanded of us, with great Civility and affable Behaviour (in broken

Spanish) from whence we came, and where we were going; to the first I answer'd, but to the last Part of the Question said, I could not tell, but that we were in Hopes to have found a Ship here bound for the Havanna; upon which he gave us to understand, there was no Prospect of meeting with any shipping here, nor could he (he said) support such a Company as we, but that he would order a Person in the Morning to put us on our Way to a Town called St. Peter's Solia [San Pedro Sula] and for our present Refreshment, commanded that two roasted Plantains should be given to each of us, with Skins to rest on that Night, which we thankfully received.

These Indians only cover their private Parts, the King himself having nothing on but a Pair of Drawers; but when they go to rest they have a Covering made of Cotton, which they sometimes wrap themselves in, lying on a Hide spread on the Ground before a Fire; they rise often in the Night to smoke and eat; for they are not able to rest long because of the Vermine, which are intolerable, tho' they use all the Means possible to keep them off, by suffering nothing to grow near their Houses, which are made of Cane covered with Leaves.

This Town of Candilero is pleasantly situated, being surrounded with fine Coco Nut and Plantain Trees, which are beautiful to the Eye; the Fruit of which are what the Inhabitants chiefly live on. Plantains are always seen on level Ground, growing in Thickets or rather Groves, but are commonly called by the Natives Plantain Walks; their Bodies are of a clear green, and smooth as

Glass, being very strait, and about twenty Foot high. The Fruit grows at the Top and is covered with great Leaves, which are eight or ten Foot long, and four Foot broad, and are also very useful to the Indians. The Trunk is about three Foot in Circumference, but so tender that a Man may cut it down with one Stroke of a Knife; and this is the Way commonly made use of by the Indians when they want the Fruit; they having no other Way to come at it; and after a Tree is cut down in this Manner, another will arise from the same Root, and in a twelve Month's Time come to full Perfection, bearing Fruit as the former.

Early in the Morning (according to the King's instruction) we sat out from Candiliero, with our new Guide, the others having left us as soon as we first entered that Town. But, however, to make themselves some small amends for their Trouble, they thought fit to strip Mr. Rounce of his bloody Shirt at parting. The same Evening we came to St. Peter's [San Pedro Sula] a Spanish Town, and were carried before Deputy-Governor, who, after asking us some Questions, said he should be obliged to commit us to Prison till he could send to the Governor of Comayagua, to know what he should do with us. The only Favour we entreated of him, was, that he would give us something to eat; upon which, he said, he would suffer one of us to go about the Town to collect Charity for the rest. This Office I was obliged to take upon me, because there was none of our Company besides, that could speak a Word of Spanish. The first Expedition I made this Way, I got some Plantains

and the Head of a Buffaloe, with which I hasted to my Fellow-Sufferers, whom I found in Prison, lying on the Ground among strange Sorts of Vermine, and making bitter Complaints of their Wounds."

The numerous settlements along the Caribbean coast between the rivers Lean and Cuero seemed to have preoccupied most of the colonial investigators. In 1745 Navarro speaks of the Rio Lean being forty-six leagues from the Gulf of Honduras, and continues: "desde es Rio de Ulua hasta el Puerta de Truxillo con mas de 40 leaguea la tierra andentro habitadas de indios llaman Xicaques que nonestan reducidos ni son danios."²⁴ It is probable that most of the Jicaques, now timid and suspicious of their conquerors, were peaceful enough and collected sarsaparilla, rubber and peltry for purposes of exchange with the Spaniards for desired articles of civilized manufacture.

In 1749, Ramon de Anguiano, Gobernador Intendente de Honduras, visited the coast of Trujillo and the dwellings of the Jicaques on the Cuero and Lean rivers. From his impressions, he drafted a plan and forwarded it to the fiscal authorities under the title: "Un nuevo proyecto para reducir á la fe á los yndios Xicakes estableciendo con ellos el comercio para utilidad de la Real Hacienda."²⁵

In sum, the idea was to withdraw the Indians from the Lean and Cuero drainages, groups who were under the domination of the mission at Luquique,

and to form them into larger villages existing under the economy of the Real Hacienda. De Anguiano's predecessor, Alexo García y Conde, had proposed to take these Indians from their mountains by force of arms to bring them under more immediate supervision of the missionaries. The mountains of Lean were populated with a considerable number of Indians, the exact number of which the padres of Luquigue could form no idea. This territory the Governor believed to comprise not less than seven hundred square leagues and to contain about sixty-eight villages with a total population of 12-13,000 Indians. Because in the past they had been brought by force into the mission stations, the Indians had timidly retired farther into the mountains, giving up the commerce once maintained with the *ladinos*. Feeling that the Indians did not wish to be separated from the mountains to which they were accustomed, because by mixing with the *ladinos* and whites they contacted fevers and colds that quickly depopulated their settlements, Governor de Anguiano suggested to the Council that it take under advisement the building of seven churches, each parish to have forty-two associated native dwellings. The plan contemplated the reoccupation of the villages organized a century previous by Fr. Josef Fernandez, two of which, San Josef de Guina and Nuestra Señora de la Candelaria in the Ulua Valley, have already been mentioned, and to reestablish the mission station at

Cangelica or Cadena on the Rio Lean at the point to which launches and canoes could be brought.

He further suggested that fifteen poor *ladino* families could be placed there to be employed as contractors for the Indians and, of course, during the raids of the Miskito Indians, to act as soldiers.

The proposal, however, was not carried through due to the exhaustion of treasury funds.

There exist, further, in the national archives of Guatemala a number of documents²⁶ all pertinent to this scheme, but almost without exception they deal with the expenses, the cost of interpreters, the types of trade material expended upon the Jicaques along the Rio Lean and farther inland in the Department of Yoro. In none of the one hundred pages of closely written material that deals with "la conquista y mision de Indios Xicaques" is there anything but an exhaustive account of these miscellaneous expenditures. No word of the native customs and language. This lack is indeed maddening, for the authorities were dealing with the actual Torrupan-Jicaque at a time when the missionaries were working among the Jicaque of Yoro.

Thus, according to the testimony of the governor of Honduras who made a map of the central Yoro area, the population of the Jicaques of this district alone was 12–13,000 with no mention made as to the rest of the tribe which extended deep into the Ulua Valley and over to the Sierra de Omoa. This figure is believed to be very high, because the general in-

fertility of Honduras caused, as it still causes, the Indian families to be widely separated. Depopulation had, however, not set in, despite the Indians' two-century-old contact with the Spaniards. So it was, seemingly, the construction of the Fortress of Omoa which finally disseminated the flourishing population of Jicaques in the Ulua Valley.

This fortress, commenced in 1752 under the reign of the Captain-General of Guatemala, Don José Vasquez Prego, required over twenty years to build at the staggering cost of 1,158,317 gold pesos. It is concerned in the history of the Jicaques only insofar as they were employed in its construction and their subsequent decimation by measles, smallpox and catarrh contracted through association with both Spaniard and *ladino*. The Jicaque were employed to bring down the massive stones that form the bastions of the fort, and in the construction of the subterranean road connecting it with the highway to Galan, extended later to San Pedro Sula.

To defend this road (upon which the Jicaque village of Candaleria was the only habitation between Omoa and San Pedro Sula) twenty-five *ladino* families were imported to supplement the Indians. The long list of construction expenses for the fort and its roads contains many items of disbursements to Indians for labor and for carrying food to the workmen. Although their number diminished greatly throughout this construction the Jicaques were not completely wiped out, as a certain Maradiaga was

able to obtain a vocabulary from two Jicaques of El Palmar, a village near the city of San Pedro Sula in 1890. Membreño, who used it, said that the language had not been studied before due to the distrust of the Indians, and that during Maradiaga's conference with the two, other Jicaques surrounded the house fearful that some harm would befall their fellows.²⁷

Until a few years ago there were also some rather primitive Jicaques living in or near the village of Santa Rita located in the upper Ulua Valley at the base of the Montaña Quemada. All of this area is now occupied by the banana farms of the United Fruit Company. On inquiry, the writer was told that these Indians, clearly described as Jicaques, were wont, at one time, to come to town dressed in bark-cloth clothes and to carry bow and arrows.*

A report sent in 1784 from the Intendente of Honduras through Guatemala to Spain mentions certain Jicaque settlements along the banks of the fertile Rio Lean and into the mountains of Mulia (now called Sierra de Nombre de Dios). Rio Lean is a relatively short stream, arising in these mountains with numerous smaller tributaries. The towns of Cangelica, Uluacito, San Juan Benque and Texiguat are mentioned. Farther, toward the Caribbean, the

* From a study of the vocabularies it is quite evident that the Jicaques occupying the Ulua region were of a sub-tribe of those of Yoro, and that there are several distinct differences in their language.

settlements are noted as being less populous. The Jicaques, apparently, traded with the Spaniards of Cataguna, but were at war with roving bands of Miskito Indians, who, with the English, had settled at Rio Negro and had made constant trading expeditions up the coast. Generally, the Jicaques remained at peace with the Spanish colonists and were dedicated, in the main, to the production of cacao.

The Jicaque territorial connection with the Caribbean coast was finally broken sometime in the early part of the nineteenth century. The hybrid Black Caribs of San Vincent gave the English authorities so much trouble in their contest with the French that, at a reputed cost of \$5,000,000, England moved 5,000 of them to the Island of Roatan. The Spanish authorities then invited these new comers—forcibly, one may guess—to settle on the mainland, whence they spread rapidly along the coast from Puerto Cortés to Ciriboya. The frictions of this new competitive contact undoubtedly caused the Jicaque to retire away from the coast and into the deep mountain recesses of Yoro. Today they have no word for "canoe," for "sea," nor for anything pertaining to that body of water. Those deep in the interior do not even know such things exist.

The largest inland concentration of Jicaques was in the Department of Yoro where Squier²⁸ estimated their number to be 7,000. Squier, however, falls into the same general error of using the term Jicaque loosely to include all the "wild" Indians of Hon-

duras. This fault is quite evident when he places them in the mountains and river sources between the coast and the Valley of Olancho, stating that Catacamas and a few other smaller villages near Juticalpa, Department of Olancho, are inhabited exclusively by Christianized Payas and Jicaques. His insistence that the actual Jicaques, the Torrupan, originally inhabited the district between the Rio Ulua and the Rio Tinto and that they were probably once spread out much farther across the plains of Olancho and into the Department of Nueva Segovia, Nicaragua, is definitely incorrect. That territory was inhabited by Payas and a Sumu sub-tribe, the Twahaka. In another article²⁹ Squier deals more thoroughly with the Torrupan, whose number he estimated to be over 5,000 in the Department of Yoro and over 1,000 in Santa Barbara, the westernmost Department of Honduras, in which the towns of San Pedro Sula, El Palmar and the ancient Nahuatl-Pipil settlement of Naco are located. Here he found the Jicaque living in settlements of from seventy to one hundred individuals, each ruled by a local chieftain or elder.

About 1855 a Spanish missionary, Fr. Manuel Jesus de Subirana, took over the administration of the ancient Jicaque mission of Liquigue and opened an intensive personal campaign to improve the life of his native charges. Habel, who visited the country during the time of the missionary's first efforts, recorded enough of interest concerning the Jicaques to quote the following:³⁰

" . . . Further on, in the Department of Yoro, I met two Xicagues, who seemed to have been little affected by civilization and were yet in a primitive state. In Yoro, the capital of the department of that name, were twenty Xicagues working for their *curador*; and from others who came to the town I collected a vocabulary of their language.

" The Xicagues differ in the form of their bodies from all the other tribes of Central America. Their stature, on the average, being equal to that of Europeans, is greater than that of the other tribes. Their skin is of a lighter color, and their features resemble more closely those of the Caucasians, having a more pleasant and intelligent expression than any other tribe of this region known to me. Both of the sexes wear a kind of apron, made of the inner bark of the Caoutchouc [*sic*] tree. That of the women reaches around the waist and the ends hang down from the hips to the knees; that of the men is but a foot wide, with a slit in the middle, through which they put the head, the front and back part reaching from the shoulders down to the knees. These two flaps are attached to the body by a strap of the same material fastened around the waist. By another narrower strap, tied around the head, they secure the long black hair, parted in front and floating down to the shoulders.

" It was but recently that the Xicagues were christened and collected into permanent settlements. This was effected by the efforts of a Spanish missionary, who gloried in having erected, during the eight years of his labours before my

arrival,* twenty-two churches, near which he induced many thousands of Indians whom he had christened to settle . . . The Xicagues are under great obligation to this man, who has liberated them from a kind of slavery, in which many of them were kept in spite of the laws of the country by which slavery was abrogated . . . ”

Subirana began first to gather the scattered communities and attempted to weld them into villages. Up to the time of the padre’s advent, the Jicaques appear to have resisted assimilation and were more or less pure in blood and culture. They were scattered throughout the mountains of Yoro, the Sierras de Pijol and de Sulaco and throughout long valleys between these mountains, especially along the tributaries of the Rio Cuyamapa (see map). Here, their mode of existence appears to have been much the same as before the Spanish discovery. They did not weave garments, but made them from the inner bark of the fig tree. They grew mostly tubers, the sweet manioc and yams, corn being but little used; and their hunting was confined to the lesser animals which they killed with the bow and arrow and blowgun.

Subirana’s plan to consolidate the scattered communities into villages seems to have been well re-

* Dr. Habel left New York in April 1862. If the missionary began his work eight years before Habel’s coming, that would place 1854 as the year Subirana first made his appearance among the Jicaques following his earlier work among the Miskitos and Payas.

ceived and the Jicaques still reverence his memory. Although he did not attempt other than a slow process of change from their own economy to that of nineteenth century Honduras, he did insist that the women do away with single bark-cloth wrapper and clothe themselves in skirt and blouse, imitating the typical provincial Hondurean dress of that era. The men retained their curious poncho-like garment, particularly in the poorer communities. Subirana gradually taught them to diversify their agriculture and introduced corn among them.

The greatest concentrations of these villages were only a few miles from Yorito and fifteen miles from Yoro, the capital of the Department. The compact community Subirana formed in the valley upon which he bestowed his own name, a five-mile-long fertile, flat plain (on which, incidentally, there is an extensive Chorotegan culture site) seems to have prospered through the next four years. However, the idea of collectivism was their doom, since it made them easy prey to forced labor. Sarsaparilla, then highly prized in the United States and Europe as a mild tonic and alterative and as a beverage, was exported in great quantities by Honduras. The vine grew principally in the cloud-forests and humid zones of the mountains of Yoro, and the governor of that Department, Quiroz, sent troops into the Jicaque villages established by Subirana, and forced the Indians to go into the mountains, collect the vines, strip them of their sharp prongs, fold them into

bundles, and carry them to Trujillo. The natives, always most susceptible to catarrh, contracted it quickly, and the infection spread rapidly throughout the villages. Subirana, according to the records in the Department of Yoro, forcibly resisted these labor drafts and appealed to the higher authorities for their cessation. Quiroz was admonished and temporarily restrained, but not before the village populations had been severely decimated by the scourge, and most of them deserted by natives as they fled again into the still remoter mountains.

In 1864 Padre Subirana died in the beautiful valley bearing his name and a Jicaque named Pedro reverently carried the body to the town of Yoro where it was interred.

Soon after the death of Subirana, Governor Quiroz reinstated his system of forced labor, and the communities so carefully built up by the missionary became almost entirely depopulated. Soldiers sent into the village of Santa Marta, situated at some 4,500 feet altitude ten miles southeast of Yorito and Luquigue, found that most of the Indians had fled. The troops followed the flight into the small valley of Gurrapara, in the heart of the cloud-forest of the southern end of the Sierra de Sulaco, where Pedro, the same Jicaque who had carried the body of Subirana to Yoro, resisted the soldiers and is believed to have killed one or more of them. Realizing that the Government's retaliation against this overt act

would be severe, Pedro, his wife and two sons, and another Indian, Juan, with his wife, taking no more than they could carry, set out across the Sierra de Sulaco. They travelled down into the valley of the river of that name and headed west into the uninhabited region of the Montaña de la Flor, a distance of thirty miles from their last home, where they founded the present settlement. All the individuals who now comprise this isolated colony, with the exception of the oldest inhabitant, Beltrán, Pedro's son, were born there. They know nothing of the Jicaques that were left behind; nor do the Hispanicized Jicaques know anything of them.*

* This history of the Jicaque gathered by the author, was the result of a series of investigations which all meshed together into a more or less definite and convincing pattern. While searching for the quetzal bird, Gurrapara was visited. Although at that time the author had only the rumor of these primitive Jicaques living in Montaña de la Flor, he gathered all the material possible about the Hispanicized groups. Later in August 1937, a celebration occurred in the Cathedral of Yoro, where the remains of Padre Manuel Jesus de Subirana were exhumed and placed in a new vault. During this time, information was obtained from some of the oldest inhabitants. In Montaña de la Flor, Beltrán, the only survivor of the trek, remembered some details (he was a boy, then, about five years old) and recalled things that his father had told him. Of the greatest importance were the details given by Jesus Lopez, a *ladino* ninety years old, who was a young man at the time of the coming of the Jicaques in the region where he had a rancho. He filled in some of the gaps, since he knew the original Pedro, the elder who founded the colony.

PHYSIQUE AND PERSONAL CHARACTERISTICS

The Jicaque are below middle height, ranging in extremes between 149 and 161 cm., averaging 156 cm. It is interesting to compare this finding with Habel's earlier quoted statement of 1862, "Their stature, on the average equal to that of Europeans, is greater than that of other tribes," and to conjecture on the possibility of four generations of close inbreeding alone accounting for their present small stature.

The torsos of the males are both well developed and proportioned. The Jicaque women, who are always fully dressed and carefully guarded, could not be submitted to measurement, but, generally, they seem to be of equal height to the males and are somewhat more heavily built. The Jicaque skin color, as Habel observed, is much lighter than that of other tribes and approaches a light copper tone. The shoulders are broad, the neck short, the cheek bones very prominent, the head brachycephalic, and the lips thick. The nose is convex and small, the nostrils being wide and flattened. Eyes, somewhat oblique, giving a decidedly Mongoloid caste to the face, are dark, but they lack the flashing intelligence of other tribes studied by the writer (pl. III, upper).

Coarse black hair is abundant on the head, but sparse on other parts of the body, although relatively thick about the pubes and the axillae. Depilation is not practiced, nor is any attempt made to remove

hairs that grow widely separated on the face. Although, according to Habel, the men wore their hair long—"By another narrower strap tied around the head, they secure the long black hair, parted in front and floating down to the shoulders"—today the men crop their hair to form a heavy "bob" at the ears, only the women permitting theirs to grow. As far as could be discovered the hair is never combed, the long tresses of the women being merely tied. There is no evidence of personal vanity among the Jicaque, and they appear to lack that universal primitive urge toward self-beautification.

The Jicaque seem to be generally robust and long lived. Beltrán, the oldest member of the community, states that he made the trek to the tribe's present locality with his father at a date which is approximated at 1866. Beltrán was then five years of age, which would make him seventy-nine at the time he was interviewed; and while he showed obvious signs of advancing years, and complained about his physical condition, as do all old people, he was seemingly well and active. The whole of the community shows the same robustness.

One of the singular characteristics of the Jicaque is their addiction to pipe smoking. Without exception everyone of the community smokes a pipe. These they make for themselves, fashioning the small bowl after a model they got from some source, and igniting the tobacco by means of flint and steel. In the stockaded villages on the Montaña de la Flor

none of the Jicaque chews tobacco, as do the members of the present Hispanicized groups. Anguiano speaks of the custom of the Jicaque in the eighteenth century chewing green tobacco in combination with lime made from snails' shells: ". . . teniendo en la boca el yute, ques es la oja del tabaco verde, mascada y amasada con la cal que produce un caracol del mismo nombre, formando de ambos simples una pasta con que creen librarse del dicho contagio [calentura]."³¹

No deformities are to be observed among the Jicaque. They practice no form of bodily mutilation; the women not even piercing their ears. The statement by Membreño that they have six and seven digits on a foot and sometimes on a hand is decidedly misinformative. He may have observed some isolated cases of polydactylism, but certainly such anomalies could not have been as common as his statement would lead the reader to suppose.

CLOTHING AND BODY DECORATION

The dress of the male consists of a tunic made from cotton material obtained from *ladino* traders, in the form of a poncho, twenty-four inches broad, which is slipped over the head and allowed to fall down below the knees (pls. III, lower; V, VI). This garment was formerly made exclusively from the inner bark of the ficus tree but, although many of the men still use the bark-cloth tunic, the fig tree is

becoming so scarce that cheap cotton sheeting is rapidly supplanting the native material. All tunics whether of cotton or bark are held together by a sash of bark, for which there is a general preference. Little change, indeed, is to be noted in the dress of the Jicaque today and that reported by Habel as seen in Yoro in 1862.

In the sash is carried the inevitable machete, which the Indian is seldom without, and from it is suspended the important pouch or bag made from monkey, anteater or tapir skin. In this are kept pipe, tobacco, flint and steel, and other small items that may be necessary to the work immediately in prospect. There is little variation in the individual dress of the Jicaque, and from the scarce casual references by the early conquerors and the descriptions of Habel it would seem that the men's costume of today may be regarded as their ancient one.

The Jicaque women, in contrast, dress in the garments prescribed for them by Fr. Subirana. The primitive bark-cloth wrapper of the past has been superceded by a simple blouse and skirt, similar to that worn by the colonial *ladino* women of 1850 (pl. IV), the cloth for which is obtained through trade.

The hair of the women is worn long and tied and is without decoration. Both sexes go barefooted, and no Jicaque was observed to wear shoes even when, as in Yoro, he has donned the clothes of the *ladino*.

DECORATION

The present Jicaque use no decoration of any kind. Neither while clearing their garden areas nor when preparing fishing or hunting expeditions, is there any change to be noted in their dress or their bodies. Achiote dye, which almost all primitive Indians of tropical America use in some form or another for decoration or protection, is not employed in any form by the Jicaque.

DWELLINGS

In the two main villages the dwellings are located behind a seven-foot palisade which encloses jointly an area roughly a mile square. This stockade, incidentally, presents only a formal idea of protection, as it can be easily scaled (pl. II, lower). However, it is a direct challenge to trespass and the visiting trader respects the boundary and is careful not to force an entrance. In the western section, presided over by the elder, Beltrán, there is a single entrance in the palisade, a large gate behind which are clustered eight dwellings about forty feet apart. Jicaque homes were once separated from each other by distances of a half-mile or so, but since the time of the missionaries they seem to have continued a sort of village economy. There are still dwellings scattered throughout the montaña, due, mostly, to the fact that the colony has outgrown the original limitations of the stockade.

The house, usually forty feet square, is composed of a wall of pine or oak uprights bound together by two courses of heavy lianas lashed at intervals (pl. V), and reinforced across the top by three horizontal rafters from which drying foodstuffs are hung. The thatched roof, which rises to a central peak, is made from the suyate palm, the thatching being well executed. A roof usually lasts for ten years without replacement (pl. IV, lower).

On opposite sides of the house are doors made from solid pieces of cedar. These entrances are narrow but the full height of the side walls. The house interior is divided into disorganized units. Even the most rudimentary fireplaces are lacking, and fires burn in several places in the middle of the packed mud floor—all with the primitive three-log Y arrangement. Sleeping racks are made of split balsa wood and are raised on racks some two feet off the ground. In Fidelio's house, partitions of cedar actually separate the sleeping racks into male and female departments, although this arrangement, since circumstances do not permit the exercise of a fulsome polygamy, is merely formal. In most of the other dwellings the racks are mere bits of wood laid side by side, sometimes covered with the skin of a deer or tapir.

Bark-cloth blankets are used for covering at night, as, at 4,000 feet, the temperature often drops nearly to the freezing point in the months of December and January. Indoors, the Indians mostly squat before

the fire or sit directly on the ground. Pine torches are used for illumination. Houses are dark and very filthy. Dogs are usually tied to one of the supporting uprights, and their feces add to the general stench of the interior. Corn, beans and tobacco hang from the attic rafters in great masses. Other vegetal food staples, yuca, camotes, and yams, however, are buried outside, as these tubers spoil quickly if permitted to remain in contact with the air. At one side of the room, resembling a ludicrous coat hanger, the repository frame for hunting amulets is suspended. Skulls of monkeys, pigs, deer, agoutis, etc. are stuck on the end of small sticks as offerings to future successes. No good hunting, it is explained, could be expected were the crania of animals previously killed not retained. Hammocks are not used, nor is any sort of infant cradle found, babies being merely wrapped and swathed in cotton cloths. A small stool is constructed, but there are but few of these in the entire community.

Outside the house, propped against the side wall, are found the hollow oak trunks in which the Jicaque cultivate colonies of the stingless honey bee. This species (*Trigona (Trigona) fulviventris* GUERIN) is widely distributed in Central America, and colonies are brought from nests found in the forest to the villages where they are propagated for both wax and honey (pl. VI).

COOKING AND PREPARATION OF FOOD

Since the Indians are most suspicious and extremely timid, it was not possible to be present during mealtime; in consequence all the processes in the preparation of food were not observed. The Jicaque no longer manufacture their cooking vessels, but employ clay pots obtained from the *ladinos* by trade or purchase. As is typical of Central and South American natives, vegetable or animal foods are boiled or stewed and if no flesh food is available the starch foods are eaten alone with hot chile peppers.

Salt, obtained only by purchase from the *ladinos*, is never used during the actual processes of cooking, but is placed on a banana leaf during the meal and is taken sparingly.

Bananas are cooked green either in the coals or else boiled with yuca or camotes. Three types of bananas are grown, but the *plantano macho* (*Musa paradisiaca*) is much preferred and more generally used. Flesh foods consist of monkey, deer, agouti, paca, wild pig, tapir, and armadillo, which latter is generally relished. With little exception flesh food is prepared only in the form of a stew.

Although the Jicaque have bordered the Mayas and, in the Sierra de Omoa, the Nahuatl-Pipil colony of Naco for centuries, they have never adopted the neighboring custom of preparing tortillas from corn, nor have they developed the metate, although many are found in excavating the Chorotegan mounds in

the regions of their traditional dwellings. The introduction of the tortilla was due to the missionaries who prevailed upon them to plant corn. Although the Jicaque seem early to have known how to make tamales, pozol, pinol, and stol out of maize, they have only recently learned to make tortillas. Their metates are crude, usually just large stones made hollow by the action of water, and the mano is no more than a large, rounded water-smoothed rock. Corn is boiled and swollen by the use of ash, but from the lack of dexterity in handling the grain, and from the clumsiness of the metate and the pottery cooking plate, it is evident that the tortilla is a comparatively new arrival among the Jicaque, and that the basis of their indigenous vegetal food economy is centered in yuca, camotes and the like.

AGRICULTURE

As the Jicaque neither weave textiles, nor engage in ceramic manufactures, the woman's work in the community is divided between domestic and agricultural activities, although the latter labor is not wholly hers, the man spending a considerable amount of time in the fields.

The only art practiced with any frequency is basketry, but it is desultory, seasonal and not highly developed. Although there is no lack of vines, creepers and epiphytic plants which might be employed, one is used almost exclusively. This is a tall reed (*Arthostylidium racemiflorum* STEUD.) found

growing sometimes to a height of twenty feet. Both men and women split these reeds during the evening hours, but the manufacture of baskets is purely a male activity. The baskets are amphora-shaped, strongly made specimens. The larger ones, now used for storing corn, are three feet high (pl. VIII, lower).

Among the group on Montaña de la Flor agriculture is far-flung. Their industry is truly amazing in view of the fact that, compared with the Paya, Sumu and Miskito, they do not seem to have been traditionally very good farmers. The Jicaque gardens, or *milpas*, are made in the humid rain forest above the pine-oak regions of their dwellings. The men precede the women, who cultivate the crops, in the work of clearing the garden areas by felling trees and burning brush in the dry season and by planting in the wet season. Corn, beans and peanuts are usually grown together in the larger *milpas*. In smaller patches camotes and other tubers, tobacco and sugar-cane are raised, although the Jicaque does not employ the latter as a food, except to extract juice from the stalks. In separate plantations their main food, yuca, is grown alone. This is the sweet variety (*Manihot esculenta* CRANTZ) that is raised throughout the whole of the Mosquito Coast, except among the Black Caribs who grow the species containing prussic acid.

Plantings of other items, important to tribal and individual economy, are also made around the dwell-

ings. Various tubers (*Dioscorea* sp.); cotton plants (*Gossypium* sp.) used only for the occasional spinning of a crude, thick sewing thread; chile (*Capsicum* sp.); the jicaro (*Crescentia cujete* L.), from which are obtained the small gourds for dishes, are here found in irregular patches with no one section devoted to any particular plant. In the more open sections between their dwellings, oranges are extensively grown along with guava, mangos and ficus trees from which latter bark clothing is fabricated. Lately, since their corn patches have yielded decreasing crops due to too constant planting, the Jicaque have taken to raising coffee along the shaded banks of the Rio Guarabuqui. This is sold to the traders who come from Orica, a town some ten miles to the northwest.

Because corn and the tortilla are so necessary to the economy of the interior of Honduras, the erstwhile plentiful crop of the Jicaque—which he grew but seldom ate—was at one time most important to the *ladino* population of the none too fertile regions surrounding Orica. Even though the maize crop is now greatly lessened, and trading in it has become desultory, in 1928 it was still so important to the valley peoples that a governmental decree safeguarding the cultivated lands of the Jicaque from any trespass was executed. This, so far as can be ascertained, is the first and most direct legislation protecting any Indian group in Central America from outside encroachment.

All the trading is accomplished in a special house built some distance from the main palisaded village. The building is a roofed, open structure containing an attic in which visiting traders may sleep. It constitutes the only artery through which a non-native can deal with the Indians, as only on rare occasions do they travel to the city.

HUNTING AND FISHING

Hunting and fishing play a most important part in the life of the Jicaques. There exists, of course, the necessity of augmenting their yuca-corn-camote diet but, aside from this need there is a deep interest in the hunt itself. There seems to be no taboo against women joining the hunt, as they accompany the men and act as beaters, driving the game toward the waiting hunters. Formerly, hunting weapons were the blow-gun, lance, and bow and arrow; today, fire-arms have replaced the lance and bow. The lance, in fact, is forgotten and even the oldest could not recall the Jicaquean word for it. The only remaining primitive concept of hunting among the Jicaque is the previously mentioned use of animal skulls as amulets. The bow and arrow is used by the younger boys and sometimes by the older men when the supply of ammunition for their fire-arms is exhausted, but they are now most ineffectually employed.

The bow is not over four feet in length and is made from the wood of the pacaya palm (*Guilielma* sp.), the bow-string being of wound agave fiber. Two

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types of arrows are fashioned, a pointed arrow made from a slender reed and tipped with hard wood of the pacaya palm, and a blunt-headed arrow for stunning birds or small game, which is merely a slender reed shaft dipped in black beeswax. These were formerly carried in a sort of quiver made of puma skin.

The blow-gun, however, has not followed the lance and the bow into discard. It is still to be found in general use even among the Hispanicized Jicaques of Yoro, and it remains an effective weapon despite the fact that only clay pellets are used as projectiles. No information could be obtained that poisoned * darts were ever employed, nor is there any certainty that ammunition other than pellets was ever used.

The tube is made from a branch of a tree called *pom* by the Jicaque and generally known locally as *mogotillo* (*Saurauia Englesingii* STANDL.). The tree appears usually in the well wooded areas of the humid regions above the pine and oak forests, and is notable for the straight growth of its branches. A branch some seven or eight feet in length is cut from the tree and allowed to dry. Branches slightly out of plumb are straightened by first being soaked in water and then bent between two tree trunks.

* The Jicaque had a general word for poison, however, *matajala*, as given in the eighteenth century vocabulary from Rio Lean. It is said, too, that the Miskito Indians used the juice of the manchineel tree (*Hippomane mancinella* L.) but the writer has never seen this tree in Honduras.

The pith constitutes about one-third of the diameter and, when thoroughly dried, is removed by a most ingenious method. The Indian procures a sharp pronged vine a quarter of an inch in thickness which is aptly named "rabo de iguana" by the *ladino*, due to its similarity to the terminal of the tail of the iguana. This vine (*Mimosa hondurana* BRITTON) also grows in the humid zones of the montaña and is brought down in long lengths and, while still green, is rammed through the pith-center of the branch selected for the blow-gun. By twisting and turning the vine like an augur, the entire length of the pith is drilled through, when a larger vine (*Equisentum giganteum* L.) is substituted to complete the dislodgment of the entire core. Due to the rotating motion of the borings, the surfaces appear to be rifled like a gun barrel. One end of the blowpipe is then tapered to fit the mouth. This weapon has no separate cup or tubular mouthpiece, nor is there a sight at its distal end (pl. VII).

The small clay pellets used as ammunition are prepared also with great precision and in an ingenious manner. A circular area, the exact size of the bore of the blow-gun, is traced on the broad surface of a large snail shell, which is then drilled through by means of a small knife until, by careful measurement, the aperture is the exact circumference of the lumen.

The ammunition is fashioned by the men and the boys, usually at night when there is little else to do,

by rolling small masses of moist clay between the palms of the hands until they are of a size to pass through the gauge-hole in the shell. The shell edges not alone insure an exact size and shape, but smooth the pellets by scraping off irregularities on the surface of the clay. These are then baked in the coals of a fire and emerge smooth, marble-like spheres (pl. VIII, upper). Blow-gun projectiles are carried in the skin bag previously mentioned.

The Jicaque shows remarkable dexterity with his blow-gun, which has a range of accuracy up to 30 yards. He can either stun or kill monkeys or the largest birds, depending on the force of impact and in what area of the head the animal is struck. Although the blow-gun remains the most important weapon of the Jicaque, it is no longer used by the Miskito, Sumu or Paya groups.

Fishing is done with neither net nor hook. It has been almost a hundred and fifty years (1795) since the Jicaques resided on the sea shore at the mouth of the Rio Lean, and so the net, and the name for it, have been forgotten. Fish-hooks are procured through purchase or trade when possible, but their use is decidedly limited and they are employed more for enjoyment than in any serious attempt to augment the tribal larder.

Stream poisoning by rotinoe-yielding plants, employed with a technique more or less similar to that of the Indian tribes of South America is still the principal method of obtaining fish food. Due to

complaints by the *ladinos* that cattle drinking the rotinoe-impregnated water abort their calves, the local government of Orica has now limited the fish poisoning activities. It was necessary, therefore, for the author to obtain a special permit from the Ministry of Justice before an organized fish-hunt could be observed.

Twenty or more men usually participate in the preparations. Several concentrate on building the fish-trap, while others go out in search of the poison. The trap (pl. IX) is constructed on two supporting logs of pine which lie braced on rocks in the water some two or three feet below a small cascade. A frame superstructure of pine is then tied in place with strips of membrillo, and river reeds are dexterously lashed across the frame at intervals of half an inch. Meanwhile the surface of the river is raised by piling rocks on both sides of the stream arranged to converge its banks to the fish weir. Leaves from the suyate palm are then placed against these rocks and weighed down by stones to form a barrier that causes the entire flow of the stream to pass through the trap, which now catches any sizeable object drifting down in the current. These preparatory operations consume a whole day.

The next morning the remaining Indians gather about two miles above the fish weir with their bundles of poison. On the occasion of the particular hunt witnessed, the bark of the *piscidia* (*P. grandifolia* (D.SM.) JOHNSTON) was used. This tree, known com-

monly as zopolote, has had considerable employment as a commercial rotinoe-bearing plant and is extensively used in the West Indies for fishing. The Jicaque strip only one side of the tree so that it will not die—the blunt side of the axe being used to strike off shreds of the heavy bark. The amount taken from a single tree is rolled into a package weighing some twenty-five pounds, which is bound with leaves of the ubiquitous suyate palm and carried to the stream bank. Zopolote is not as effective as barbasco (*Tephrosia Heydeana* (RYBD.) STANDL.) but it is easier to obtain as the latter grows widely spaced only in the dry pine-oak areas. Still another poison, produced from a vine called chilpate (*Salmea scandens* (L.) DC.), often used by the *ladino* in Olancho for fish poisoning, has not the effectiveness of either of the other two narcotics.

Women are taboo during the fish hunt and a man whose wife is pregnant or menstruating must neither gather poison nor become a member of the party, because it is believed his presence will so weaken the potency of the poison that the fish will not succumb to it.

Some distance up-stream from the trap, the men wade into the water, each with a package of the bark which they immerse until a milky substance exudes. The bundle, still in its palm-leaf wrapper, is then placed on a rock and beaten with a broad-surfaced club and then again immersed. This process is repeated by each Indian until the bark no longer emits

the whiteish rotinoe, when the wrapper is opened and the macerated contents thrown into the water. This is repeated until close to forty packages of the bark are used, in all approximately eight hundred pounds.

At least an hour is consumed in these operations, when the party splits into two groups, one on either side of the river, where they comb the eddies along the banks for stunned fish. Some of the Indians then proceed downstream to the trap to retrieve the fish from that vantage point. The right time of the year for fish hunts is the hot-dry season when, the writer was informed, as many as 1,000 fish are taken by this process. The use of the numeral by the Jicaque, *mil*, in this instance, however, is nothing but the ladino-Spanish convention, signifying "many."

As at the hunt witnessed the temperature of the water was around fifty degrees, the poison did not take effect as it should, and only a small number of fish were taken, including, however, two foot-long eels. There occurred afterward a heated discussion as to the catch being so small, which, it was felt, was not from lack of preparation, but rather because some of the participants had not responded truthfully to the questions of the elders in respect to their respective states of "cleanliness."

The fish-hunt is a definite part of Jicaque economy, and they have lost none of the technical details or craftsmanship in their slow transition from the cultural arts of their ancestors.

TRIBAL AND FAMILY ORGANIZATION

Tribal organization, it would seem, was once much less integrated than it is now found. When the Jicaque were more numerous and lived at varying distances of one another, there was no chief or elder of the groups except an elected leader for a war that affected the whole tribe. Such a chief, chosen during a general conflict, dropped back to the respected obscurity of an elder of his dwelling and his own immediate family after the emergency ceased.

Today in the two Jicaque communities on Montaña de la Flor, the tribal system has changed, and the elder has full power over all the Indians in his group. In each community his word is final, and it is astounding to note the rapidity with which the desired action is carried out by the Indians on word of command. When facial masks were being made, after the confidence of Fidelio had been gained, he simply ordered that the Indians permit the casts to be formed, and they sat through what to them must have been a terrifying experience without a word of remonstrance. This would hardly have occurred among other tribes, the Jivaros of the Upper Amazon, for example. Live masks are illustrated on pl. X.

The elder is appointed at the death of his predecessor whose dying wish is carried out and the succession to rule seems to be fully respected. This process of government represents a distinct innovation from earlier forms, and has probably been

adopted as a last stand of the Jicaque against the ever-encroaching Spaniard.

Nothing exists in the literature on the Jicaques concerning the ancient family organization and very little was vouchsafed during the investigations here reported. Their utter terror of the white man's diseases, their timidity in regard to any questions as to population, number of wives, etc. made any investigation of these matters impossible. The manner of courtship, taboos kept during a woman's pregnancy, naming of children, dietetic regulations during the child's growth, all were veiled in determined silence. There was, too, the difficulty of language. None of the Indians could speak Spanish very fluently and the expedition lacked the necessary vocabulary properly to enter into the small intimate details of family life.

A Jicaque household today consists usually of the husband, his wives and his children, sometimes a grown son and his wife, sometimes an unmarried brother. Because the tribe now numbers scarcely more than a hundred individuals, women have become scarce and polygamy cannot be practiced as it once was. There were at least four bachelors among the group studied. Some of the Jicaques had young girls for their second or junior wives, but whether they are treated freely as such could not be ascertained. These younger women help with the household and agricultural tasks but not one had borne children. Unless the Jicaque has noticeably changed

in the last seventy-five years, I cannot agree with the rather uncritical dictum of Membreño: "Son estos indios muy lujuriosos [libinous], y sus hembras están en cinta á los doce años; se asegura que no hay respeto por las relaciones de familia, y que es frecuente que aun el padre laza madre á su propia hija. Por esto se comprenderá que los jicaques son una raza degenerada, llegando su falta de sentimientos de dignidad humana hasta vender sus hijas y mujeres por cualquier baratija [trinket]."³²

Membreño was speaking of a tribe of Jicaques living at El Palmar, near San Pedro Sula. Those visited on the Montaña de la Flor certainly show less degenerate tendencies than the *ladinos*, the family ties seem strong and constant, and there exists a most determined manner in the protection of their women folk.

It is quite probable that fathers did partake of their daughters in the early days of the new community on the Montaña; but this was undoubtedly less activated by incest than by the lack of women to propagate the small remnant of the tribe.

Although they have a word for feast and, it may be taken for granted, prepared some sort of intoxicating drink in the past, no such beverage is found among them today and they deny having a word for any drink of that nature. The word for drunkenness survives, but they are adamant in their refusal to partake of the brandy proffered them by visiting *ladino* traders. White people who have lived near

the Jicaques do not remember any instance of drunkenness, nor of homicide or other serious crime among them. The Jicaque refuse to allow padres to baptize their children, but they beg the visitor to name their children, all of whom, consequently, have Spanish names. Membreño's assurance: "unas, como las inmediatas, a Orica, catequizadas . . ." certainly does not hold today, so far as the younger Jicaques are concerned. No padre has ever passed the portals of their stockades, nor any one else prior to this expedition, except the American Consul, Acley, and Dr. Guilbert of Tegucigalpa, who spent a few hours in one of the houses in 1932.

Undoubtedly Christianity has had its effect upon them, even though it has come to the present group, which has never been in contact with missionaries, only through the narrow funnel of the earlier conversions by Subirana.

Practically nothing of the ancient cosmogony of the tribe exists, and those few confused concepts possible to record had Christianity inextricably bound up with them. On one dwelling there was a cross tied to a center beam. Since most of the houses among the *ladinos* display such symbols, it may have come to this family as a curious cultural loan. Upon inquiry it was learned that the cross was "against lightning," i.e., a protection or safeguard.

The Jicaque recognize two primary beneficent gods: *Kastariyus* and *Hívaro*. The first is undoubt-

edly a corruption of the Christ-god. He remains eternally young, dwells in the heavens, and gazes down upon the world through a narrow-grated window. His influence is good, but neither offerings nor salutations are made him by the Jicaque. The second, *Hívaro*, also youthful, dwells apart from *Kastariyus* but appears in the same places. He likewise is offered no salutations.

The god of evil is female and is called *Tsii*. This being was described by two different informants, each with such vivid detail as to give the impression of their having actually seen it. *Tsii* is tall, has red eyes and wears the typical native clothing. She is the principal devil of which the Jicaque lives in mortal fear. There are others, smaller ones, who accompany her day and night. Their dwelling place is thought to be in the rocks—the larger rocks especially which abound in great number on the Montaña de la Flor, past which the Indian hurries mumbling something in the form of an incantation. It is believed that once a person is seized by *Tsii* nothing can save him from death. As the Jicaque gasps for breath in his death struggle, he is said to be clutched by *Tsii*. Yet all illness is not considered to be caused by the maliciousness of this demoness. On inquiry among several of the group under cure for leg ulcers it was learned that such minor things were not caused by the she-devil. Such ailments as swelling of the spleen, rheumatism and the results of

snake-bite are caused, in their mind, by the introduction of a foreign body similar to the *tunchi* (arrow) among the Jivaros.

The vague and confused legends based on an earlier intimate contact with Christianity have warped all their primitive approaches to the devil concept. It is not difficult to discern in *Tsii* and her satellite imps a corrupted combination of Satan, Eve and the snake in the Garden of Eden, along with Beelzebub and an assortment of lesser demons all of which occur in the Christian devil-cosmogony.

The Jicaque have no word for shaman or for the Spanish equivalent, *brujo*. They disclaim all knowledge of bush-medicine, and indeed, from the mortality occasioned among them by simple diseases, this may well be true.

A curious mixture of Christianity with their own beliefs, is shown, too, in their manner of disposing of the dead. After some preliminary mourning, the body is wrapped in cloth or bark-cloth, carried to the cemetery and interred with no actual burial accompaniments, except some of the garments in which the person died. A single repository, walled off like any typical Spanish cemetery, is located high on top of a hill a mile from their villages. At the foot end of the grave, a small wooden cross is placed, and at the head, an old clay pot with a hole punched through it. The pot is thus broken, it was explained, so that the corpse might be able to breathe through it.

THE JICAQUE RESERVATION AND THE FUTURE
OF THE IMMIGRANT COLONY

The agricultural pursuits of the Jicaque were far flung and for years were an important adjunct to the economy of the villages about them, and occasioned a brisk trade with white residents and *ladinos* of the valley. The population of Morale, a village ten miles to the west of the Montaña de la Flor, had, for some years, encroached upon the Jicaque plantations, a trespass that was a constant source of friction between the timorous Indians and the village residents.

In May 1927 Sr. don Francisco Mejia, alcalde of the town of Orica located some twelve miles distant, applied to President Barona of the Republic of Honduras for authority which would protect the Jicaques of the Montaña. His recommendations were in part as follows:

I have the honor to inform you that the indigenes that inhabit the Montaña de la Flor and its jurisdiction number about one hundred souls; other than a simple inspection is not possible in order to set up a more complete census of the inhabitants. These indigenes, who speak a dialect which none here understand, are very elusive (*muy esquivos*), and it is impossible to have intimate relations with them; but the greater part of them understand Spanish, for it is taught to them by their chieftains. Their life and customs are balanced and good; they live in complete peace

and never has there been recorded between them the taking of blood. They dedicate themselves to the cultivation of cereals and tubers as well as corn which is planted on a large scale. This is beneficial to the residents of this municipality Orica and to Cedros, and in addition, to the people of the Departments of Olancho, Yoro and Comayagua; they dedicate themselves also to the cultivation of tobacco of which they grow a superior type. The religion they profess is Catholic, they are Believers and very respectful toward this faith, but never wish to enter directly into it, because they do not wish to be baptized, nor to confess, declaring that these rituals are prejudicial because once possessed of them and once learned, those who do so display all forms of viciousness and become doers of evil. None of them knows how to read or have any relations with the *ladinos* for they will not admit contact with them due to their fear of acquiring a disease which they call "catarro" and which disease when it takes hold, decimates them, for once an Indian is ill he is abandoned until he is dead, so much fear do they have of this contagion. Another illness which readily attacks them are lombrices or stomach worms. They have constructed a formal cemetery where they inter their dead. Their houses are buildings of thatch with uprights of wood; they raise an abundance of all classes of birds in their corrals, as well as calves and steers; they are addicted to the hunting of deer and tapirs and all other classes of wild animals. With the exception of the women, who always go about clothed,

the men use only strips of cloth without sewing which covers the chest and the back, coming to the knees and held in place by a cincture of rope, fibers or vines.

In selling their products to the *ladinos*, the Indians are most considerate and for this reason we believe that the Supreme Government should focus their attention upon them. Their property as well as their cattle should be inviolate, as they as well as their agricultural products are important to all the other inhabitants of the valleys. For their agriculture, as I have said, is developed on a large scale and during times of drought or other calamities they remain always willing and ready to sell their products to whomsoever asks them. The territory that they occupy is public domain [national territory] and so it is my belief that it would be only just that this section of terrain, Montaña de la Flor, be deeded gratis to the tribe in perpetuity, so that none, in the future, might encroach upon them. (Author's translation)

President Barona's response to this request was immediate. He sent two engineers, José de Martinez and J. Burgos, to survey the Jicaque land, which survey was completed the same year. After ascertaining that not any of the Jicaque occupied territory was used by the *ladinos* nor claimed by any other resident, the engineers mapped out the claim that was to be ceded by the Government to the Jicaques. Page 8 of that document sets the limits

of the reservation, which included a total of 1,875 acres granted to the Indians in perpetuity.

The title to the land was completed and the Reservation made an actuality by President Barona on January 25, 1929, "in fulfilment of the cited memorandum 713 of the date of January of this current year and with the present testimony of 28 folio pages of Papel Sellado 'first class' of the proceedings in the measurement of the Terrain called 'Montaña de la Flor' located in the Municipality of Orica, Department of Tegucigalpa, in favor of the wild tribe who occupy it, whose actual chiefs are Domingo Martinez and Beltrán Soto for which they hold title in their common territory."

Thus, after four hundred years of exploitation and encroachment, this pitiful remnant of the Jicaque (Torrupan) came to possess this small parcel of land, the first formal reserve to be created, it is believed, for any primitive Indian group in Central America.

The importance of this governmental act cannot be overly stressed as it means that investigators still have an opportunity to go among this pure group of Jicaque for further study.

In other sections of Yoro, too, there may still be found isolated communities of Jicaques, not as pure, perhaps, in their ancient culture as those of Montaña de la Flor, but sufficiently primitive to make investigation advisable, especially for further studies in vocabulary and language structure. Throughout the valley of Central Yoro and farther into the Sierra

de Pijol there are communities of Hispanicized Jicaques that will bear investigation. An exceptional opportunity exists for work to be done in filling in the ethnological blank now existing in Honduras through a complete study of the Jicaque groups.

ETHNO-BOTANY

During the investigations among the Jicaque on the Montaña de la Flor the author's wife, Christine Inez von Hagen, made a representative collection of plants from the various ecological zones of that area. Medicinal and religious plants are wholly lacking among the Jicaque and, as the Indians are not given to extensive handicrafts, the list of plants other than those employed as food is not impressive. Nevertheless, as little or nothing has been recorded for this group it was felt that some approach to the subject should be made not alone to discuss the ethno-botany of the Jicaque, but for comparison with that of other groups in different areas of Honduras.

The collection thus made, now deposited in the New York Botanical Society, was examined and identified by Dr. Paul Y. Standley, a leading authority of Central America flora. The author is extremely grateful to Dr. Standley not only for his scholarly interest, but for throwing considerable light on the classification of several obscure specimens.

1. Maize (*Zea mays L.*). Planted in the humid zone gardens. Used principally for making a crude tortilla; it is seldom eaten fresh.

2. Maizello (*Sorghum vulgare* PERS.). Cultivated in small plots; not utilized by the Jicaque; planted principally for trade.

3. Yuca (*Manihot esculenta* CRANTZ). The principal food staple of the Jicaque. Each family raises its own patch, there being no communal gardens growing this plant. Boiled and eaten, generally, alone without salt, or as an ingredient in stews.

4. Camote (*Ipomoea batatas*). Prepared similarly to yuca.

5. Yams (*Santhosoma* sp.). Prepared similarly to yuca.

6. Tubers (*Dioscorea* sp.). Planted near to the dwellings in a desultory manner although the food is highly prized.

7. Beans (*Phaseolus* sp.). Planted in gardens; forms, with corn and yuca, an important item in the agricultural economy of the Jicaque.

8. Peanuts (*Arachis* sp.). Eaten raw; seldom toasted; grown mostly for sale or trade with the *ladino*.

9. Sugarcane (*Saccharum officinarum* L.). Grown in small patches; not an important plant among the Jicaque, as they extract only the juice by sucking.

10. Pineapples (*Ananas sativus*). Grown in small patches near the house; eaten occasionally by the children.

11. Guayaba (*Psidium guajava*). Cultivated around dwellings, although the tree grows wild in the forests. Only the fruit is eaten.

12. Guayo (*Talisia olivae formis* HBK). Trees grown about the dwellings. Fruit is eaten.
13. Sarsaparilla (*Smilax officinalis*; *S. medica*). Gathered for trade.
14. Matsano (*Casimiroa tetrameria* MILLSP.). Cultivated for fruit.
15. Cotton (*Gossypium* sp.). A few bushes grown around each house. Cotton is spun into small threads which the Jicaque use occasionally for sewing when commercial thread is not available.
16. Tobacco (*Nicotiana tabacum* L.). Grown in relatively large patches. Entire tribe, women, men and children addicted to pipe smoking. They raise enough tobacco above their own needs for trade with the *ladino* populations of the valleys.
17. Chile peppers (*Capsicum* sp.). Eaten with almost every meal either raw or as an ingredient in a stew of game and yuca.
18. Mescal (*Agave* sp.). Fibers combed out and used for rope for bow strings and arrow bindings.
19. Matapalo (*Ficus costaricana* (LIEBM.) MIQ.). Grown within the village palisades for its bark from which clothing is made. Formerly the tree was felled; now, since it has become scarce, only large branches are cut off for stripping. The bark is removed in strips sixteen inches wide and twenty feet long. It is then soaked in water for several days to remove the heavy viscous sap which, like rubber, has a tendency to coagulate. Such residue as remains after soaking, is scraped off. Bark beating seems to

be solely a male occupation. The long strip of bark is pounded over a rounded stump with a longitudinally grooved club made especially for the purpose. The technique is precisely similar to that employed not alone by western hemisphere groups such as the Sumu, Miskito, Otomi and Tlingit, but by natives of Polynesia and the Celebes, as well. Various other wild figs appear in Montaña de la Flor and are undoubtedly used when *F. costaricana* cannot be procured. The other species are: *Ficus padifolia* HBK; *Ficus radula* WILLD; *Ficus glabrata* HBK; *Ficus involuta* (LIEBM.) MIQ.

20. Membrillo (*Chaetoptelea mexicana* LIEBM.). Employed for making heavy bark cloth blankets.

21. Mogotillo (*Suarauia Englesignii* STANDL.). Branches of tree cut into eight foot lengths; used for the manufacture of the Jicaque blow-gun. Tree grows in humid sections of the region. Other species identified were *S. leucocarpa* SCHLECHT and *S. pauciserrata* HEMSL., but it was not ascertained if these species in addition to *S. Englesingii* were used.

22. Rabo de iguana (*Mimosa hondurana* BRITTON). Sharp-pronged vine used for hollowing out pith of branch in manufacture of the blow-gun.

23. Barba de viagre (*Equisetum giganteum* L.). Pronged vine used to enlarge lumen of blow-gun.

24. Corizo (*Arhostylidium racemiflorum* STEUD.). Grows in stands along stream banks to a height of over twenty feet. It easily splits into six sections

each $\frac{1}{8}$ in. wide and is used by the Jicaque to make baskets (pl. VIII, lower).

25. Cebolla de cerro (*Agave brachystachya* CAV.). A slender agave growing to a height of four feet; light, yet strong, with a diameter of not over a $\frac{1}{2}$ to $\frac{3}{4}$ in. Used for arrow shafts, the points of which are made from the pacaya palm.

26. Pacaya (*Chamaedorea graminifolia* WENDL.). A tall, relatively slender-trunked palm which serves for various purposes. The leaves are often used for roof thatching and for temporary shelters when hunting. Bows are made from the trunk and, from its harder portions, sharpened points for arrows.

27. Coyol (*Acrocomia vinifera* OERST.). A large leafed palm, common on the coast, but quite scarce on the interior montaña. Planted near to the dwellings. The nut, which yields a heavy oil, does not seem to be utilized.

28. Banana (*Musa paradisiaca* L. & M.; *sapientum* L.). Large groves of banana plants are grown about the dwellings. Two varieties seem to be preferred, the small Cavendish eating banana and the large *platano macho*. Eaten raw and sometimes in stew, but more often baked in fire ashes.

29. Coffee (*Cafe arabica*). Not used; grown for sale only.

30. Calabash (*Crescentia cujete* L.). Planted about the houses. The round, non-palatable gourds are used for dishes.

31. Achiote (*Bixa orellana*). Not used by the Jicaque, though its seeds are important in the economy of most of the Indians of tropical America. It grows within the village stockades.

32. Oak (*Quercus segoviensis* LIEBM.). Forms the extensive ocoatal-robledals and used by the Indians in the construction of house-walls and palisades. Also used for firewood.

33. Pine (*Pinus oocarpa* SCHIEDE). Because of large pitch content, used principally for illuminating torches and for stratifying the fires. Another species (*Pinus caribaea*) is also employed for the same purposes.

34. Damajoa (*Heliocarpus exsul* STANDL.). A fast growing tree quite similar to the balsa. It is very light and furnished the uprights for Jicaque dwellings. The Hispanicized groups of Yoro use it for the walls of their houses, as well. Several species are identified: *H. Donnell-Smithii* ROSE; *H. appendiculatus* TURCZ; *H. florus* SM. ROSE.

35. Zopolote (*Piscidia grandifolia* (D. SM.) JOHNSTON). Used by the Jicaque for fish poisoning. Large tree, twenty-five to sixty feet, usually found growing near to streams or rivers.

36. Barbasco (*Tephrosia Heydeana* (RYDB.) STANDL.). A small leguminosoan plant found growing in the dry pine and oak regions. Powerful rotinoe-yielding qualities and used, when obtainable, for fish hunts in preference to zopolote. Although other rotinoe-yielding plants grow in the area (*Lonchocar-*

pus Michelianus PITTIER; *L. hondurensis* BENTH) these are not singled out by the Jicaques for fishing.

37. Chilpate (*Salmea scandens* (L.) DC.). Used for fish poisoning by the *ladinos*, but seldom, if ever, by the Jicaque. It is one of the most common vines fringing the river beds.

OTHER PLANTS OF NO GREAT UTILITY

38. Masicarin (*Dalbergia cubilquitensis* (D.S.M.) PITTIER).
39. Lengua vaca (*Eupatorium Oerstedianum* BENTH.).
40. Suncel (*Veronia deppeana* LESS.).
41. Cordoncillo (*Piper multinervium* TREL.).
42. Flor armiarillo (*Paeymenium purpusii* BRANDEG.).
43. Liquidambo (*Liquidambar styraciflua* L.).
44. Aguacatillo (*Nectandra globosa* (HBK) MEZ.).
The resplendent quetzal eats this fruit.
45. Chilca (*Baccharis glutinosa* PERS.).
46. Uva (*Ardisia compressa* HBK).
47. Guama (*Inga punctata* WILLD?).
48. Panillo venado (*Ostrya virginiana* var. *guatemalensis* (WINKL.) MACBR.).
49. Guava de danto (*Chrysophyllum oliviforme* L.).
50. Santa Maria (*Calophyllum calaba* JACQ.).
51. Limoncillo (*Trichilia Donnell-Smithii* C. DC.).
52. Nance (*Brysonima crassifolia* (L.) DC).
53. Higarilla de monte (*Ricinus communis* L.).

54. Mano de Leon (*Oreopanax peltatum* LINDEN).
 55. Joco mico (*Spondias* sp.).
 56. Zapote (*Calocarpum mamosum* (L.) PIERRE).
 57. Cola marana (*Pithecolobium arboreum* (L.)
 URBAN).
 58. Chinicuite (*Bursera simaruba* (L.) SARG?).
 59. Chichicaste (*Wigandia caracasana* HBK).
 60. Capulin (*Trema floridana* BRITTON).
 61. Leche grado (*Croton panamensis* (KL.) M.
 ARG.).
 62. Algondoncillo (*Rapenea ferruginea* (R. & P.)
 MEZ.).
 63. Quebra muela (*Clusia flava* JACQ.).
 64. Sarsa (*Mimosa albida* H. & B.).
 65. Riego plato (*Solanum ochraceo-ferrugineum*
 (DUNAL.) FERNALD).
 66. Mozoton (*Desmodium plicatum* CHAM. & SCHL.).
 67. Vara blanca (*Lippia myriocephala* C. & S.).
 68. Aguacte negro (*Phoebe mexicana* MEISSN.).
 69. Nance cerro (*Clethra hondurensis* BRITTON).
 70. Chuti (*Persea Schiedeana* NEES.).
 71. Mora (*Rubus miser* LIEBM.).
 72. Zapotillo (*Photinia microcarpa* STANDL.).
 73. Guarumo (*Cecropia hondurensis* STANDL.).
 74. Nogal (*Juglans pyriformis* LIEBM.).
 75. Matasano (*Casimiroa tetrameria* MILLSP.).

LANGUAGE

Although the linguistic position of the Jicaques has been discussed to some extent in a previous

chapter, it may be wise to review the whole subject here even if some duplication is necessarily incurred. Due to the great lack of material for study, the scattered and fragmentary vocabularies recorded, and the relative difficulties met in the structure of the language itself, the linguistic position of the Jicaques has seemed to puzzle most of the investigators of the subject.

Brinton,³³ who had little or no material because Membreño did not publish his vocabularies until 1895, believed that while the Jicaque language contained a few Nahuatl words "the body of its vocabulary reveals no relationship to any other stock." Squier,³⁴ who wrote much earlier, was led to the conclusion that the Jicaques might possibly have been of common stock with the Lencas and speaking dialects of the same language. He was led to these conclusions on the use of Lenca Indians as interpreters by the missionaries whenever they went into the Jicaque country. Unfortunately for his hypothesis, he succumbed to the error of using the term "Xicaque" as a general appellation for all the wild tribes of Honduras. This confusion is obvious when he states that these "Xicaques" lived on the Rio Guayape and in the Xmastran Valley, now established to have been territory occupied by the Sumu and Paya.

Squier further bases his deduction on the close affinity of the Jicaque and Lenca tongues, mostly from the assertions of Juarros and Peleaz that the

Jicaques and Lencas are of one stock. From the writings of both of these historians Squier deduced "what is probably not far from the truth, that all belonged to a single group."

Thomas and Swanton³⁵ are of Brinton's opinion that the language of the Jicaque is an isolated stock. "This language, which, so far as known at present, was that of an independent stock, here named Jicaquean, is, or was, spoken by a tribe of Indians living in northern Honduras . . . Although Membreño has a note on this tribe, he fails to indicate the locality further than by presenting the vocabularies of two dialects of the language—'Jicaque of Yoro' and 'Jicaque of Palmar' . . . The difference between these two dialects as shown by the vocabularies is as great, if not greater, than that between the Maya proper and the Cakchikel."

Nor have the latest studies of Frederick Johnson added anything to the solution of the linguistic puzzle that the Jicaque present in their position in Central America. He recognizes that little has been added concerning the original territory occupied by the Jicaque since Thomas' and Swanton's work. Johnson lists Jicaquean as an unaffiliated stock along with Payan and Tarascan and shows the hypothetical boundaries as Thomas and Swanton placed them.

As previously noted, Lehmann regards the Sumu and Miskito as close affiliates in the Talamancan subdivision of the Chibchan stock, with the Paya, Lenca and Jicaque as remoter members. In this he agrees

with Sapper who felt that the Paya, Lenca and Jicaque held, linguistically, the middle ground between the Chorotegans on one side and the Mayan and Nahuatlean speaking peoples on the other.

The list of words chosen by Lehmann (II, p. 779) is here inserted to demonstrate what he regarded as similarities among the Paya, Lenca, Xinca, Mixe and Jicaque tongues. The terms shown in italics are supplied by the present author and do not appear in the original compilation.

	<i>Paya</i>	<i>Lenca</i>	<i>Jicaque</i>	<i>Xinca</i>	<i>Mixe</i>
mouth	<i>sapa</i>	ts'āts'a	<i>lup</i>	xahac	—
tongue	<i>uaw</i>	nepel	pu-elam	ela, ejlan	—
hand	<i>sawa</i>	gu-lala	<i>mas</i>	—	cüö, co
maize	aú	ama	au-cu	ahua, aima	yoa- moka
house	caó	t'áu	guá	macu, uápo	tüökö, töök
louse	<i>cua</i>	tem	<i>tet</i>	tüöma	—
leaf	paia	—	<i>tsulo</i>	piya	—
stone	sa	caa	<i>pe</i>	—	tza
black	<i>saunkna</i>	sínga	<i>te</i>	sima, suma	—
water	asò	üas	sö	—	—
wind	<i>aunpiska</i>	poc	leo-puc	—	yzegüe

To Lehmann this purports to show that there must have been some dispersal point of the Xinca tongue which, while bearing an affinity to the Mixe-Zoque of Chiapas, had, nonetheless, been influenced by the

close contact and relationship with Lenca. From this vortex of tongues, the Chibchan from the South meeting the Mixe-Zoquean from the North, in Central America, Lehmann assumes the foundation of Jicaque, Paya, and perhaps even the Miskito-Sumu. There is no doubt but that this area of Honduras and Nicaragua peopled by Xinca, Lenca, Jicaque and Paya, constituted a zone of close mutual contact which marked the north-eastern limit of the Chibchan culture thrust into Central America. This is, despite its complications, as simple an explanation as can now be made. The latest analysis of Mason³⁶ is more complicated and no more conclusive:

"The affiliations of the Xinca, Lenca, Jicaque and Paya languages are so uncertain and controversial that for the present they had best be left unclassified or independent. There seems to be some sort of connection between all, but the lexical differences are so great that no two of them can be linked. Schuller insists that they, together with most of the other languages of Central America, including the Mayan, fall in his great Maya-Quiche-Carib-Arawak phylum. Lehmann sees Hokan traits in all except Payan. (The Hokaltecan Subtiaba are nearby.)

"Almost all agree, however, that the true affiliations lie between Mixe-Zoque (Mizocuaean) and Chibchan. It should be noted that this is also the region of the cultural boundary between North and South America. By some they are considered intermediate languages, bridges

from Mizocuavean to Chibchan, and they may be true mixed languages with double or multiple roots. Sapir sees Penutian tendencies in all of them, decreasing from Xinca to Paya, and Lehmann believes that there is a demonstrable original relationship between Xinca, Lenca, Jicaque, and Mixe-Zoque and suggests that Aguacatec II forms the bridge from Mixe-Zoque to Xinca . . . ”

Since Lehmann's studies, published in 1920, Conzemius has completed the outstanding definitive work on the Paya.³⁷ This excellent report on a tribe which now, culturally speaking, has been virtually dispersed, contains an exhaustive vocabulary and a minutely analytical grammar. From it there can exist no doubt but that the Paya, Jicaque, Sumu, and Miskito, in both culture and language, have shared some common source of origin.

Unless the future brings to light additional source material now buried in Spanish-Colonial or Latin-American archives—which, incidentally, is not at all unlikely—it would seem that this present work among the only known primitive group of the Jicaque (Torrupan) might be the last contribution to the linguistic chaos existing among the various native groups of northern Honduras.

VOCABULARIES

Among the several vocabularies representing different and widely separated sections of Honduras, but all within the acknowledged traditional borders of

the Jicaque tribe, perhaps the most valuable, because it represents the first attempt to record native words, is that taken by missionaries working among the Jicaques along the reaches of the Rio Lean into the Sierra Nombre de Dios. This vocabulary, published by Fernandez,¹⁷ is not only extensive but, in many instances, agrees closely with the present vocabulary recorded by the author at the Jicaque colony on Montaña de la Flor. A comparison of the two vocabularies taken seventy-five miles apart after an interim of one hundred and fifty years demonstrates many similarities in the more important words and, thus, confirms the belief that this Jicaque group has preserved intact much of its traditional speech. It must be emphasized, however, that some of the words recorded in 1790 when the Jicaque lived near the coast have long since been lost through disuse.

The texts of the same period taken from Padre Pedro Gomez published by Lehmann are only two small fragments of what must have been an extensive *doctrina Cristiana*. Had this been found complete much information would have been made available as to sentence structure and general grammatical form of the Jicaque tongue, for undoubtedly the padres would have been more conversant with it than any one else.

The vocabulary given by Menbreño,²⁷ already mentioned as being obtained through a resident of San Pedro Sula from Jicaques living near El Palmar, is interesting. For, despite most inaccurate tran-

scription and probable invention on the part of the Indians, the recording shows many intrusive Nahuatlisms, as might be expected from the geographical location of this group. Such a variation in speech developed that, of the five hundred words forming the comparative vocabularies of the Jicaque, scarcely more than twenty of the Palmar dialect show any agreement with those taken from other parts of Yoro.

The last vocabulary to be taken among the Hispanicized Jicaque throughout the Department of Yoro by Conzemius,³⁸ is extensive and more thorough than any previous recording. In almost every instance this vocabulary agrees with that of the present writer taken from the primitive Jicaque on the Montaña de la Flor. Considering the stretch of time, the natural timidity of the Jicaque, and the personal equation to be accounted for in the recordings by individuals, not all trained linguists, there is, nevertheless a general uniformity in many of the words of the six known Jicaque vocabularies.

Although vocabularies taken by the author from three Hispanicized Jicaques showed little agreement and obvious inventions where the real Jicaque word was not known, the compilation established a basis for similar recordings in the colony on the montaña. Two of the more intelligent Jicaques there, Ricardo and Abran, were informants, but, although many words were listed, the impossible task of piercing the

native reticence made it difficult to compile many phrases.

ORTHOGRAPHY. The following sounds are recognized in the recordings here listed:

a, b, c, d, e, h, i, k, l, m, n, o, r, s, t, ts, u, w, x, y, z.

a, e, i, o, u, unless modified by standard English diacritical marks, are pronounced with the values as in Spanish.

ö, as in the German *löwe*.

ts, as the German z in *zeit*.

x, as the English sh in *she*.

ch, as in Spanish.

ñ, as ing in *sing*.

THE ARTICLE. There seems to be no definite article. The Jicaque, however, do use what might be called article prefixes, *an* and *am*, generally slurred as in *n'kēp* (woman), *n'tsupil* (thatching), *m'pol* (star), etc. For the indefinite article, the cardinal number one, *pani*, is used. It is always placed after the noun.

ACCENT. Follows no definite rule; most words, however, are accented on the ante-penultimate syllable. In the verbal infinitive, the accentuation is the penultimate. In bi-syllabic words, the accent falls on the first syllable.

GENDER. No special termination indicates gender. In regard to persons or animals, it becomes necessary to express sex by a noun complement; *yom* (man), *kēp* (woman), *kokoy* (male), *mumuy* (female):

kastara mumuy, hen

ampusai kokoy, male quetzal bird

kěp tunkür dress of the women

Size is similarly expressed by a suffixed word; *pöne* (big), *tsikway* (small):

yom pöne, big man

yom tsikway, small man

POSSESSION. Expressed with the adjectival possessive placed before the noun; it is not inflected:

nap tsoyo, my dog

hip tsoyo, your dog

hup tsoyo, his dog

The adjective is generally non-variable and is placed after the noun. The verb generally ends the sentence, and with some form of recognizable conjunction. The infinitive of the verb in most instances ends in *ga* or, sometimes, phonetically *ka*:

pues sega, to be

wus karakka, to show

hakarrutsaka, to send

The infinitive endings in related languages are; *aya*, Miskito; *naka*, Ulwa; *nini*, Panamanka; *nin*, Twahka.

VOCABULARY

man	yom
male	kokoy
woman	kěp
female	mumuy
family	torrúpan
father	bapáy
mother	namáy
husband	wayum
wife	natsom
child (boy)	tsikway
girl	kěptsikway
young man	pots kescuy
son	natawáy
daughter	kukustway
oldest brother	natam
youngest brother	natam tsikway
oldest sister	tsipuay
youngest sister	tsipuay tsikway
uncle	kokam
aunt	namap
nephew	kerep
grandson	kokway
son-in-law	papusway
chief	kokoy kurándets
elder	kulmuy
brother-in-law	nahey
father-in-law	nayom
bachelor	tärran pur yasatuk
body	popo
flesh	buisis
bone	kre
blood	ats
vein, nerve	tsitsim
skin	porok

hair	tsil
head	hipuk
forehead	barra
eye	nan
eyebrow	nantsir
eyelashes	nantsir
ear	potz
nose	nik
mouth	lam
lip	lup
tongue	berañ
tooth	bis
beard	tchukan
neck	mentoñ
shoulder	pus
elbow	mankuts
hand	mas
arm	pel
finger	machipan
nail	pep
chest	osum
navel	luru
stomach	kol
hip	nolónkol
back	pop
leg	dik
foot	tsom
knee	dik
tail	zok
heart	nahas
liver	kom
spleen	puepe
breast	horsun
kidney	hoyóro
milk	tsots
lungs	popoy
intestines	tsul
saliva	puts
urine	tsutska
excrement	uyus

spirit; soul	tamay
blind	hin druk
sick	tsunuka
dead	tenkwit
devil	tsii
sky	solsis
sun	loksaki
moon	mumuy
star	pöl
fog	mol
rain	hevi
hail	lup
dew	luak
frozen	potsots
ice	tsoix
water	tsö
warm	awa
fire	aua
air	lupu
lightning	lorim
thunder	lal
steam	puk
smoke	mus
rainbow	tsekolsöp
earthquake	chikatchi
earth; mud	ma
mountain	neven
valley	yomal
cave	mehöl
pit	ma höl
stone; rock	pë
sand	sus
mud	ma
dust	pa
ash	pö
gold	temel be
silver (money)	temel pe
river	tso pöne
salt	tsarin

summer	tsatchi
winter; wet season	tsáhots
dry season	latsaktec
heat	awa
cold	tsoix
shade	tsoro
dark	poxtumo
year	chiiquin pöne
month	mu pöne
day	yakats
yesterday	tampin
tomorrow	yay
late	nasetya
night	puiste
morning	ya
afternoon	atsöva
noon	tseteya
lion	pua
jaguar	tepuia
deer	pus
tapir	til
pig	marano (Sp. corrupt.)
wild pig	siba; nam
dog	tsoyo
rabbit	kotokot
rat	metusi
cat	miste (Sp. corrupt.)
peccary	nam
agouti	ke
horse	kavyu (Sp. corrupt.)
anteater	kuyu
paca	poyom
coati	tsol
armadillo	yúkuts
squirrel	tsu
monkeys	tseür; lui; suyu
capuchin monkey	marakañ
small lizard	modut
iguana	hupue
snake	lats

egg	pehey
nest	tsinstin
feather	pesus
buzzard	manta
bird	tsobay
eagle	tsushi
hawk	poyos
owl	ke
barn owl	tsots
macaw	pasa
parrot	kirik
parrakeet	murets
rooster	kastara kokoy
hen	kastara mumuy
sparrow	tunum
woodpecker	tsekterem
toucan	tenkwit
turkey	torö
wild turkey	yus
fish	kul
alligator	yuts
crab	hop
frog	win
scorpion	tseb
spider	korok
tick	tsum pue
louse	tot
flea	pel
cockroach	kratsa
ant	lakesay
fly	tsongroy
mosquito	hene
cicada	tsikin
grub; worm	tsey
shell	tso
butterfly	lemlem
wasp	petel
honeybee	tsax-pöne
honey	tsax
wax	yam

tree	yo
trunk	lotot
root	tsil
branch	am
leaf	tsulo
bark	lotot
spine	tsip
bramble	hol
fruit	wurax
wood	wot
woods	hokmo
pine grove	tsurol
field	tsitsi
grass	huyu
harvest	wawa
maize	nop
sorghum	tevlen
yuca (manioc)	kéval
agave, maguey	nurö
camote	mana
yams	mun
tubers	wöm
beans	tsin
wild grapes, uvas	tsurotsol
peanuts	kuö
coffee	koa
sugar-cane	au
pineapples	matsats
avocado	tsit
guava	söol
papaya	tsenwoy
squash	nu
sarsaparilla	tsals
banana (generally)	bärentá
small Cavendish banana	palatin (Sp. corrupt.)
large platano macho	bärentá kokoy
chicle, zapote	tsela; an
calabash, jicaro	shem
tobacco	puya
cotton	tönim
zopolote	tunkúye

barbasco	tse
chile peppers	tsele
bijagua	tsuts
ciruela	mirak
matsano	unwa
fig tree	tüi
mescal	nulu
guajinquil tree	kok
cedar	yats
matapaolo	lem
membrillo	tsuyos
mogotillo	pom
rabo de iguana	puts
barba de viagre	poiproi
corizo	biso
cebolla de cerro	namshoe
pacaya	krak
coyol	yuku
achiote	wal
oak	tsuey
pine	ayo
damajoa	ahut
masicarin	tsetrete
lengua vaca	umwak preän
suncel	tsumul
cordoncillo	tumyos
aguacatillo	tzectios
chilca	ants
panillo venado	merisílas
guava de danto	tel miyu
Santa Maria	matar
limoncillo	tsengreyos
nance	tcheb
higarilla de monte	tsui
mano de Leon	hutsok
joco mico	urukon
cola marana	tsiriyuk
jinicuite	pots
chichicaste	pucamuk
capulin	puman
leche grado	ayos

algondoncillo	tönimyos
quebra muela	bistíura
sarsa	hol
mozoton	tsols
vara blanca	yope
aguacte negro	tsete
nance cerro	tsupa
chuti	wat
mora	techepuë
zapotillo	an
guarumo	kopai
nogal	pana
matasano	va
food	las
feast	lomenganä
lard, fat	pan
green corn	ko
corn gruel	jul
tortilla	tsets
raw banana	chi
stewed banana	tihr
baked banana	bärantá ata uhm
brown sugar	lus
home, house, store	wa
hut	tsupel
house-wall	bömáts-toso
thatched roof	tsúpil
door	huranu
bed	kan
stool	kúsäla-sets
coal (charcoal)	tsek
lime	pö
metate	pemos
caldron	tsöoy
clay cooking pot	leka
cooking plate	cumal
bark beater	lapras
basket	tululu
clothing	kalson (Sp. corrupt.)

male tunic	nihngüp
male bark-cloth tunic	nihngüptüi
female bark-cloth wrap	kěp tankurtüi
female wrap of trade material	kěp tankür
pouch, bag	pópus
shoe	sapat (Sp. corrupt.)
skirt	kodo otso
fish hook	tsutä kóyuk
firearms	escopeta (Sp.)—makie
blow-gun	tutla
blow-gun pellets	mul
arrow, blunt	semor
arrow, pointed	harek
bow	yamektü
quiver	acäntu
white	pe
black	te
red	he
yellow	lu
blue	tsu
green	hostsu
name	lea
word	tevele
cry, scream	latipu
noise	pak
sadness	piu
thief	pek
ulcer	mentsyuts
sleep	maha
dry	pa
sour	tuhusa
bitter	on
sweet	an
small, little	tsikway
large, big	pöne
thin	kre
tender	luluy
good	uwö

bad	marara
beautiful	ok
round	tulu
square	temtemaki
heavy	kapuktua
strong	hasteok
feeble	amarada
thick, fat	pan
wide	kopal pöne
high	kamba
old	kolmuy
crude, raw	tör
drunken	as̄is-minhöp
to finish	ka po matör
to burn	tunim ka
to tie	supap
to start, to pull out	lakorokga
to roast	maunla
to search	paparkga
to descend	partek
to yawn	mahaga
to cut	tets
to eat	luka or tela?
to run	kiganeska
to harvest	wawäka
to sing	netseska
to fall	partök
to heat	öwa
to construct	komaringa
to give	kayaga
to sleep	purestaka
to expectorate	putsga
to enter	wääös
to be cold	kinkin tsöis
to shoot arrow	nukagös
to scream	kurö
to boil	myolka
to find	kalayguşak
to go	maska
to cry	pönepöne

to rain	hive
to die	tepéy
to grind	kyol
to toast	sar
to take	naä
to play (music)	netsetska
to see	keönuk
to weep	lipyum
to urinate	katsutsga
to hear	yakas
to stay, endure	sepep
to rot	tomah
to rob	tupemára
to perspire	putswa
to dream	hami
to sow	tisiňka
to be hungry	tsurök
to be thirsty	tsö nive
to cough	mentsyutska
to work	trabaholey (Sp. corrupt.)
to bite	tera
to run	tsekene
I	nap
you	hip
he	hup
we	kup
she	na
they	na-im
yours	hipitsa
I am	tsö
he is	nip
we are	kup
his	huputsa
they are	yonap
I eat	nape tela
you eat	höpe tela
he eats	hup lia
this	köne
where	kat

here	kive
how	san
there	nahats
near (close)	nyapin
far	kamba
below	mana
above, upon	arpa
yes	poni
no	an
much	brek
there is (are) not	nahats
who	panak
what	tchum
why	höse

Numeration is vegesimal. In counting the Jicaque uses fingers and toes as digits.

one	pani
two	mata
three	kont
four	urupan
five	komasopani
six	kuspi
seven	kus panikuö
eight	kamayarö
nine	
ten	komaspö
twenty	tsenam pani
forty	tsenam mata
sixty	tsenam contis
eighty	tsenam yurupa
one hundred	tsenam komas

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LUSH VEGETATION OF UPPER HEIGHTS ON
MONTAÑA DE LA FLOR



STOCKADE SURROUNDING BELTRÁN'S VILLAGE—
RIO GUARABUQUI IN BACKGROUND



TYPES OF JICAQUE MEN



JICAQUE MEN SHOWING NATIVE COSTUME



JICAQUE WOMAN WITH INFANT
AT AUTHOR'S CAMP



JICAQUE HOUSE WITH WOMAN IN FOREGROUND—FROM
GATE IN STOCKADE AROUND BELTRÁN'S VILLAGE



GROUP OUTSIDE JICAQUE HOUSE. NOTE PARALLEL COURSES OF LIANAS BINDING WALL UNITS



JICAQUE MEN GATHERING HONEY FROM CULTIVATED BEE COLONY



JICAQUE MAN USING BLOW-GUN AND WEARING NATIVE GARMENT
(*nihugüptü*) AND SKIN POUCH (*pópox*)



CLAY PELLETS (*mul*) USED AS AMMUNITION
FOR BLOW-GUN



JICAQUE BASKETS



FISH TRAP, SHOWING METHOD OF DAMMING STREAM BANKS WITH ROCKS AND SUYATE PALM LEAVES



DETAIL OF JICAQUE FISH TRAP IN POSITION



LIVE MASKS OF JICAQUE MEN

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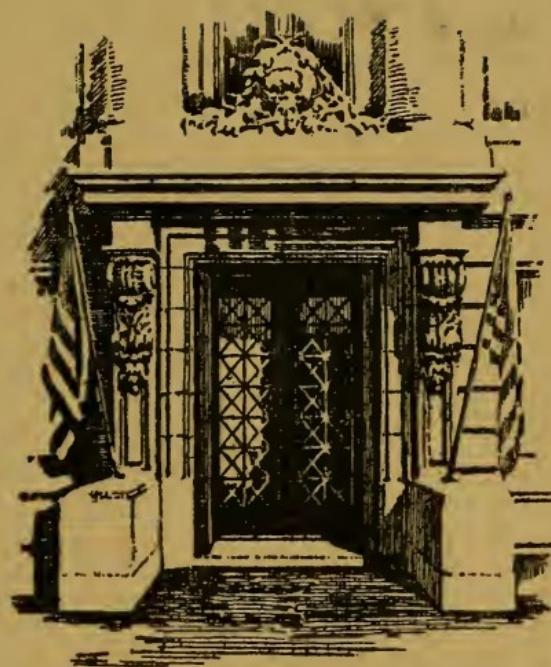
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